

CALIFORNIA JOURNAL OF ELEMENTARY EDUCATION

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CALIFORNIA JOURNAL OF ELEMENTARY EDUCATION

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EDITORIAL COMMENT AND NEWS NOTES

STATE WIDE COMMITTEES APPOINTED

Superintendent Kersey has recently appointed a number of state wide committees of particular interest to educators in the elementary field. The personnel of the committees will be announced in the next issue of the *California Journal of Elementary Education*. The subjects of the work of the various committees are announced so that elementary school educators who would like to make a contribution to the work of the state committees may know of the projects in process.

SCOPE AND SEQUENCE OF MAJOR LEARNINGS IN THE CURRICULUM

Educators from all levels of the public school system have been invited to make recommendation of the sequential organization of curricular units in the school system. Since "education is a continuous process" it is difficult to justify the overlapping and unnecessary duplication which exists within and between the different levels. The work of this committee will be broad rather than detailed and will leave opportunity for local school systems to develop their own curriculum according to their needs.

The organization of a scope and sequence program will be of service in a state (1) with great mobility of pupil population; (2) committed to state adoption of textbooks; and (3) with administration of various segments of the school system vested in different administrative officials in many localities. A unified and coordinated educational program will represent a major objective of the committee on scope and sequence of major learnings.

EARLY CHILDHOOD EDUCATION

In April, 1935, a large state wide conference on early childhood education was called in Fresno. As a result of this conference many problems in this area of education were indicated.

The committee on early childhood education will be confronted with such problems as (1) should school service be extended downward to include the preschool child? (2) should kindergarten education be made an integral part of the elementary school program? (3) what curriculum changes are needed on the level of early childhood education?

The nursery school movement has received tremendous impetus due to the sponsorship of the federal government. If this support is curtailed or withdrawn, a demand will probably be made upon the public schools to continue the program. The question of nursery education cannot be answered offhand. Citizens will probably be reluctant to assume the support of what may be generally believed to be the obligations of the home. If the nursery school, however, can be made a laboratory for parental education, further justification for public support may be recognized.

The future of kindergarten education depends upon the accomplishment of three important undertakings: (1) the clarification of values derived from kindergarten education; these values must be established on a basis of sound, painstaking, and continuous research; (2) the acquaintance of the public with the results of such studies in order that a favorable public attitude may be maintained; (3) the development of a legislative program to secure state support of the kindergarten as an integral part of the school system.

Recent researches in maturation have revealed the desirability of careful consideration of the curriculum for early childhood education. The committee will consider the placement of learnings in the curriculum in the light of physiological and psychological maturation.

THE USE OF VISUAL AIDS IN INSTRUCTION

In response to the many requests from school officials in regard to the use of visual aids, a committee has been invited to study the problem and make recommendations concerning the methods of using, the most appropriate types, the kinds and sources of visual aids, and the organization and administration of visual materials in various types of school systems.

ORGANIZATION OF INSTRUCTION IN SEVENTH AND EIGHTH GRADES

Approximately 50 per cent of the children enrolled in seventh and eighth grades in California attend school in junior high schools; the other 50 per cent are found in the traditionally organized eight grade school.

The problem of recommending curriculum reorganization to provide a satisfactory program for early adolescence will constitute the work of this committee.

The committee will expand the recommendations of the Committee on Scope and Sequence of Major Learnings and make somewhat more detailed recommendations for enriching the educational offerings at this particular level. Since the organization of seventh and eighth grades in traditional elementary schools is chiefly found in small

towns and rural areas, the committee will afford an opportunity for educators confronted by a similar complex problem to pool their resources in its solution.

CALIFORNIA WESTERN SCHOOL MUSIC CONFERENCE COOPERATIVE CURRICULUM PROGRAM

On October 12, 1935, Mary E. Ireland, President, California Western School Music Conference, called a meeting of leading music educators in California to discuss the program of music education in the elementary schools. The committee agreed to offer its services to the State Department of Education in the preparation of a comprehensive teachers guide for music education on the elementary level. This guide will include sections on general music, integration of music with the curriculum, appreciation, creative expression in music, and instrumental music. The committee proposes to have this material available at the time of the biennial music conference in 1937.

THE ELEMENTARY SCHOOL PRINCIPALSHIP IN CALIFORNIA

The appearance of the publication, *The Elementary School Principalship in California*, State of California Department of Education Bulletin No. 19, October 1, 1934, after many months of delay will be welcomed by elementary school principals. The State Department of Education and the California Elementary School Principals' Association cooperated in obtaining and compiling the data reported in the bulletin, and many significant facts are revealed concerning the status of the elementary school principalship in California. The material presented should form the basis of discussion and study at local and regional meetings of principals as well as furnish information for school trustees and interested patrons. Copies will be distributed free to those on the free mailing list for the *California Journal of Elementary Education*. There will be a nominal charge to others who wish copies.

CALIFORNIA ELEMENTARY SCHOOL PRINCIPAL HONORED

Special notice should be given to the honor and recognition accorded Harley W. Lyon, Principal of the Burbank and Longfellow Schools, Pasadena, at the Denver meeting of the National Education Association. Mr. Lyon was elected President of the Department of Elementary School Principals for 1935-36. California principals are happy to be represented in the national association by an active and popular member of their own group.

A NEW EDUCATIONAL JOURNAL

The *Educational Scene*, a journal of the modern renaissance, is the name of a new educational journal, the first number of which was published under the date of October, 1935. The journal has a board of editors consisting of Walker Brown, Ray Compton, M. E. Herriott, Robert Hill Lane, Elizabeth Van Patten, Charles H. Nettels, and Edwin H. Trethaway. Associate editors are William B. Brown, C. C. Trillingham, and John W. Wilson. Published at Hollywood, the new journal is distinctly a California enterprise.

In the first issue the editors announce their purpose as follows:

We believe that true democracy in the American sense, and in the best American tradition, calls for a free, full opportunity for discussion and the clash of opinion. The pages of the *Educational Scene* will be open equally to all—liberal and conservative, radical and reactionary, malcontent and vested interest. We shall foster absolute freedom of issues and freedom of speech. Our only stipulation is that all messages must be expressed with good taste, good judgment, and sincerity.

The *Educational Scene* will be published monthly during the academic year from October through June. The subscription rate is \$2 per year, and 25 cents for single copies.

BUILDING AMERICA, PHOTOGRAPHIC STUDIES OF MODERN PROBLEMS

Building America, a pioneer venture into the field of pictorial textbooks, presents dramatically the pageant of American life and portrays the achievements of our people in social, economic, and cultural fields. About three-fourths of the page space of each study is devoted to photographs, charts, picturegraphs, and maps, so arranged that they develop a comprehensive story of the topic under treatment. Teachers guides are available for each issue.

Volume I, Number 1 of *Building America*, the Food number, centers around the main problem of feeding the American people. It pictures vast areas of fertile land, how farmers and machines raise the nation's food supply, the use of modern science in agriculture, canning factories and packing plants, mills and bakeries that supply the nation's bread, and dairies that furnish America's milk supply.

Dr. James E. Mendenhall of Lincoln School, editor of the new publication, believes that picture studies are an answer to insistent and widespread demand of educators for a new type of visual text material that will present contemporary problems in dramatic form.

It is the intention of the editors to provide pertinent material in future issues for such subjects in the social studies as geography

history, economics, government, and social problems. These publications will present the story of the achievements of American ingenuity and ideals. They will describe the present status as well as the inherent possibilities in our wealth, power and skill for improving the quality of American life, materially and culturally.

Building America is issued monthly, October to May, by the Society for Curriculum Study, Incorporated. The editorial offices are at 425 West 123 Street, New York, N. Y. Ten or more annual subscriptions (eight issues) to one address, \$1 each. Special rates may be secured upon request to the above address.

MOTION PICTURES IN EDUCATION

The extent to which motion pictures will be studied in the schools and colleges during 1935-36 is evidenced by the report that sixty-three photoplays of educational interest will be released during the coming school year.

Dr. William Lewin, Chairman of the Motion Picture Committee of the National Education Association's Department of Secondary Education, has just completed a survey of the forthcoming productions in Hollywood. Ten pictures have been tentatively selected for discussion in motion picture appreciation courses and study guides will be provided to supplement the study of these photoplays.

The new pictures of interest to educators that will be produced during the coming year are:

Romeo and Juliet	Twenty Thousand Leagues Under the Sea
A Midsummer Night's Dream	Forty Days of Musa Dagh
A Tale of Two Cities	Three Musketeers
Oliver Twist	Quality Street
Little Lord Fauntleroy	Last Days of Pompeii
Anna Karenina	Faust
The Good Earth	Carmen
Ivanhoe	The Crusades
Kim	Crime and Punishment
Mutiny on the Bounty	Dodsworth
Knights of the Round Table	Little America
Marie Antoinette	Life of Pasteur

Dr. Lewin declared that the steadily rising level of motion picture quality, accompanied by rising standards of photoplay appreciation, are forces that have helped to inaugurate production programs that will include grand opera, light opera, and photoplays based on the works of Shakespeare, Dickens, Barrie, Kipling, and Tolstoy. He says that educational previewing committees are looking forward to a year that will be notable from the standpoint of the classroom.

RECENT BOOKS OF INTEREST TO ELEMENTARY SCHOOL PRINCIPALS

A number of professional books of special interest to elementary school principals have appeared within the last few months. Some of these books have been reviewed in *California Schools*.

Lincoln School Studies Society: A Study Outline for School Staff Meetings, published by Teachers College, Columbia University, is a volume which offers innumerable suggestions for professional and cultural growth of teachers under the leadership of the elementary school principal. The bibliography at the end of each section is selective and should prove valuable in planning building meetings.

Another publication from Bureau of Publications, Teachers College, Columbia University, which will interest principals is *Millions of Years in a Winter*. This book is a record of a curriculum unit which was developed in a fourth grade at Lincoln School. The author, Edna Bridge Leining, has presented a practical account of this science unit and the objective evidence of children's learnings. She has included a log of the teacher's and pupils' activities, plans, and evaluations, a time schedule, and carefully evaluated bibliography for teaching a unit on rocks and minerals.

Education of the Slow-Learning Child, by Christine P. Ingram, published by the World Book Company, is a volume which should be welcomed by principals who are striving to adjust the school to the child. Units which have been successfully carried out with slow-learning children are presented in detail in this book as well as material of a professional nature helpful to those who are dealing with slow ability groups.

Hollis L. Caswell and Doak S. Campbell are the authors of a significant book entitled *Curriculum Development* from the press of the American Book Company. These authors have presented progressive practices in curriculum development throughout the United States, about which elementary school principals should be informed.

SUMMARY OF RESEARCH ON READING DISABILITIES

The National Conference on Research in Elementary School English announces its third annual research bulletin entitled *Reading Disabilities and Their Correction*. It contains an introduction by Dr. E. A. Betts, Superintendent of Practice, State Normal School, Oswego, New York, a summary of forty-three recent research studies in the field of reading difficulties, and an annotated bibliography of forty-six books and articles on reading disabilities. Copies may be obtained by addressing the Secretary, C. C. Certain, Box 67, North End Station, Detroit, Michigan. The price is 50 cents. Critical

evaluations of this yearbook by Dr. Arthur I. Gates, Dr. Donald D. Durrell, and Dr. William S. Gray appeared in recent issues of the *Elementary English Review*.

A few copies of the second yearbook, *A Critical Summary of Selective Research in Elementary School Composition, Language, and Grammar*, are still available and may be ordered at 50 cents each.

NEW PUBLICATIONS

PLEASURE READING FOR BOYS AND GIRLS

A state wide committee of librarians and teachers has been at work during the past year preparing *Pleasure Reading for Boys and Girls*, State of California Department of Education Bulletin, No. 16, September 1, 1935. This bulletin represents a carefully selected list of books for boys and girls of all ages. Many of the annotations are illustrated by engravings from the books themselves. The grade placement and vocabulary difficulty of the various books have been given in most instances as well as the publisher, date, and price of the edition. This book list should aid teachers and principals in the guidance of the pleasure reading of boys and girls by helping to select books in accordance with individual interests and abilities.

It is recommended that this list form the basis for first purchase of recreatory titles in elementary school libraries being established in response to the demands of the modern school program for more recreatory reading. Well established libraries serving elementary school children may wish to check their offerings against this list so that as teachers guide children's reading the titles suggested may be available.

Pleasure Reading for Boys and Girls will be distributed to the elementary schools within the next few weeks.

THE ELEMENTARY SCHOOL LIBRARY

A publication of interest to every elementary school principal will soon be distributed from the State Department of Education. *The Library in the Elementary School*, State of California Department of Education Bulletin, No. 18, September 15, 1935, represents the work of a state wide committee of city, county, and school librarians and teachers interested in furthering the effective use of the library facilities in the elementary schools of California. This publication presents the function of the library, its organization and administration, personnel, and the use of library methods in the elementary school. It should be the responsibility of the elementary school principal to further the use of the library, and this material will be of inestimable service to him in fulfilling this important duty.

MATURATION AS A FACTOR IN LEARNING¹

GRETCHEN WULFING, *Supervisor of Elementary
Schools, San Jose*

PART I

THE PROBLEM

The twentieth century, more than any other period in history, is the age of childhood. The development of child study clinics, the recent White House Conference, the development of the "child centered" school, and the participation of the entire nation in activities for child welfare are evidences of the recent trend.

The vastly increased knowledge of child growth and development has affected elementary education profoundly. Educators are reexamining both philosophy and practice in an attempt to adapt school life to the maturing needs of the children.

One problem that has been the concern of administrators and teachers for many years is the appalling amount of failure in school, particularly in the primary grades. Several studies have pointed out the extent and causes of pupil failure. Reed (38)² reports a median percentage of failure of 18.5 per cent in low first grades, and a median of 10.8 per cent in high first grades. Burnham (12) estimates that roughly one-third of school children fail to the extent of a year's retardation. Lack of ability in reading, according to Gates (17), causes 99.15 per cent of the failures in the first grade, approximately 90 per cent in the second, and approximately 70 per cent in the third grade. Arithmetic later becomes the bugbear, and is asserted by Osborne and Gillet (35) to be the principal cause of pupil failure in the intermediate grades.

The school has sought to solve this perplexing problem by increased emphasis on method of instruction, by beginning training in a given subject earlier to spread the content over a longer period, or by conscientiously coaching slow children. None of these devices brought the desired result, because they attempted to make the child conform to standards of adult need without reference to his ability to grasp the subject.

Now educators are attempting to harmonize the elementary school curriculum with the developing physiological, mental, emotional, and social maturity of the children. The meaning of maturation in its relation to the school subjects has been stated by Gates (18):

¹ A study carried on under the direction of Paul R. Hanna, Associate Professor of Education, Stanford University, during the 1935 summer quarter.

² Numbers in parentheses refer to the references at end of article.

No form of reaction can appear before the muscles, bones, nervous system and other structures are sufficiently matured. It is futile to attempt to teach most children to walk before they are a year old because their structures are incapable of executing the act. This principle applies throughout the entire period of growth. It is wasteful to attempt to teach certain children to play and enjoy chess or to learn and enjoy geometry before their organisms have grown up to a certain level. A sufficient degree of maturity is one of the requirements for successful achievement in every kind of activity. For this reason studies of "readiness" for learning different activities such as writing, reading and others are being made in order to enable a teacher to tell accurately when she can most successfully introduce a pupil to learning different activities.

The importance of fitting instruction to the maturity of the child is expressed by Jersild (27):

There is no greater single problem in education than the problem as to when and in what activities training should be given, not only in infancy but also in the early school years.

It is the purpose of this study to review the literature relating to maturation in children, and to answer if possible the following questions: (1) What have psychology and the biological sciences contributed to our knowledge of maturation? (2) What have studies in reading and arithmetic indicated to be the proper time to begin the teaching of these subjects? (3) What further research in this field would be valuable to educators?

BIOLOGICAL AND PSYCHOLOGICAL STUDIES

ANIMAL BEHAVIOR

Several studies relating to maturation in animals have been conducted by psychologists. Breed and Shepard (10) prevented a group of newly hatched chicks from pecking for several days. A second group was allowed to feed naturally during that period. The first group was then allowed to peck, and in a couple of days showed as much efficiency as the control group which had the advantage of practice in pecking. The greater age and maturity of the experimental group may be considered a factor in their rapid attainment of normal accuracy in pecking behavior.

A similar experiment with chicks was carried on by Bird (8), comparing the pecking reaction of chicks at hatching and on the second day. He concluded:

It is probable that the factor accounting for differences in accuracy between first and second day chicks is not practice but the physiological development or maturation which proceeds with increasing age.

Carmichael (13) placed a group of frog and salamander embryos as soon as they showed head and tail "buds" in a solution of chlore-tone, which permitted growth but no movement or response to external

stimuli. A control group was placed in tap water and allowed to develop in the ordinary way. After five days the experimental tadpoles were moved to tap water, and after half an hour of swimming practice could scarcely be distinguished from the control group. Carmichael assumes that both maturation and a favorable environment are responsible for functional development.

From the studies of maturation in animals it may be safe to assume that certain functions of an organism are more dependent upon age and maturity than upon practice at an earlier stage of development.

CHILD BEHAVIOR

Numerous studies concerning the effect of training versus maturation in young children have been reported. Some of these relate to motor functions, some to mental functions, and one to special abilities. For purposes of clarity, they will be reviewed in the order named.

Motor Functions. Gates and Taylor (20) attempted to determine whether continued practice before the time of maturity stimulates a more rapid growth of the capacities concerned in a function. They carried on an experiment in speed of tapping, using children from four to six years of age. Two equated groups were formed, and the practice group given training in speed of tapping for six months. During that time the children made slow but continuous improvement. The control group received training for the last seventeen days of the training period. At the end of that time their achievement equaled that of the group that had received practice for six months. Both groups were then given no further training for six months, and then tested again. Again their accomplishment was about equal. The authors believe that the growth of the practice group was due partly to maturation and partly to improved technique of tapping. The practice seemed to help the particular technique, but to have no influence on maturation.

Gesell and Thompson (21) sought to discover the conditions of age and growth in relation to learning. Their subjects were identical twins. At the age of 46 weeks, when both were at the threshold of climbing ability and of combining ability with blocks, Twin T was trained for six weeks in stair climbing and in cube play. Her early reactions to training were relatively passive and she needed assistance in climbing, although at 52 weeks she climbed the stairs in 26 seconds. Twin C at the age of 53 weeks was then given training in stair climbing for only two weeks. At the beginning of her training period she climbed alone unaided and after two weeks' training her time was 10

seconds. In cube play Twin T was similar in behavior to Twin C who was not trained at all. The authors conclude:

There is no conclusive evidence that practice and exercise even hasten the actual appearance of types of reaction like climbing and tower building. The time of appearance is fundamentally determined by ripeness of the neural structures.

Hicks (22) carried on an experiment to discover the effects of systematic well motivated practice upon the ability of young children to hit a moving target with a ball. His subjects were 60 children aged two and a half to six and a half, one group being trained for eight weeks and the other receiving no training. In summarizing the findings of the study, he says:

In general for the complex skill studied, and for the amount and kind of practice given, the extra practice given to the practice group resulted in but slightly more improvement as compared with the control group. After a lapse of a considerable period of time it is doubtful if any advantage would remain with the practice group.

Jones (29) from a study of identical twins, reports observations similar to those of Gesell and Thompson. In several tests the twin who had received earlier training was not superior to the twin who was trained at a later period.

Hilgard (24) selected nursery school children to observe the effect of training in buttoning, cutting with scissors, and climbing a ladder. Previous studies had shown these abilities to appear at 24 to 36 months, and children of that age were therefore chosen because the skills were in process of development. The practice group received intensive training in the three skills for twelve weeks, and after a retest of both groups, the control group received training for four days. Final tests showed the control group to have made almost as much gain as the practice group. Hilgard summarizes her results as follows:

In this experiment, we cannot certainly distinguish between the gain to be attributed to maturation alone and that due to maturation plus practice in activities related to the specific skills studied. What does appear is that maturation, plus this related general practice, accounts for the great gain made between the initial test and the initial retest of the control group, and that specific training throughout the twelve-week period was a far less important contributing factor in the development of these three abilities than was this general developmental trend.

Jersild (28) in a series of experiments with young children attempted to determine the relative importance of training and maturation in strength of grip, strength of back, tapping, and vital capacity. The ages of the children who participated in the tests ranged from two to seven. Two equated groups were selected for each test, one being given intensive practice and the other no practice.

Tests were made at the end of the training period and again after the passage of several months. The following conclusions, reported in connection with the tests of vital capacity and of strength of back respectively, indicate the results in all the experiments.

The fact that the controls, with practice limited to periodic tests, scored practically as high as the children who received prolonged training would seem to indicate that training had little effect on capacity.

The practiced children improved somewhat during the period of training as compared with the controls. The difference between the two groups is small and statistically unreliable. When retests were made after a further period of no practice, no significant difference remained.

One other study of the effect of practice in a motor function is reported by Mattson (33). Children aged four and a half to six years were paired into two groups. The experiment consisted of a rolling ball maze of three levels of difficulty. After an initial four-day practice period for both groups, the practice group was trained for 26 days. A retest was then given and after two months of non-practice, both groups were given a second retest. The experimental group increased rapidly in skill, the control group relatively little. The difference between the two groups increased in magnitude as the level of complexity increased; the control group was almost equal on the simple maze, but less proficient on the intermediate and difficult mazes. The same relationship held after two months of non-practice. Mattson concludes that

complexity seems to be the factor in determining whether time alone, or time spent in practice, is essential in producing skill of a high level.

Mental Functions. Studies relating to training in a mental function are less numerous, but possibly more directly applicable to the educational problem. Gates and Taylor (19) experimented with four- and five-year-old children in memory for digits presented orally. The children were divided into two groups of equal ability, after which one group was trained for 78 days. At the end of that time the practice group showed improvement over the control group. With the retesting of both groups after four and a half months, however, the control group showed a slight superiority. The authors are of the opinion that the superiority of the practice group at the end of the training period may have been due to improvement in the technique of the test rather than to actual growth in the function tested. The later development of the control group suggests the effect of maturation as opposed to specific training.

Strayer (40) used the same identical twins as Gesell and Thompson, testing the effect of training in vocabulary development. Twin T was selected again for training, this time for a period of five weeks

(from her 84th to her 89th week). When this training period was ended, Twin C was given the same practice for a period of four weeks. All conditions were identical during the experiment; the only variable was the greater age of Twin C at the beginning of training. The results showed superiority of Twin T in two-word sequences and a slight advantage in phonetic accuracy. Twin C learned faster, was markedly superior on commissions, on picture-pointing, and showed a slight advantage in naming parts of the body in Spanish. The author accounts for the superiority of Twin C on the basis of her greater maturity at the beginning of training.

Studies of speed of color naming and of speed of free association were made by Jersild (28) with six- and seven-year-old children and with nine- to eleven-year-old children respectively. In each case the practice group was given training for three days weekly for more than three months, when both groups were tested. A period of three months was then allowed to lapse, followed by a final test. The practice groups showed superiority at the end of the training period, but were approximately equaled by the control groups after the period of no training. Jersild concludes:

It would appear that further improvement in the performance would depend upon further growth rather than increased specific training.

Special Functions. Jersild (28) reports a study in vocal ability, which may be considered somewhat different from those in motor and mental functions. He selected children from 31 to 48 months old, and trained one group in the ability to reproduce pitch and the ability to reproduce simple intervals for about six months. The practice group in this case led at the end of the training period, and again after an interval of four months during which no training was given. The author suggests that many children employ a limited tonal range which can be extended by training. It would seem that early training in vocal ability before the tonal range becomes fixed might bring valuable results.

The unanimity of findings in all these experiments in motor and mental functions is striking. In every case (excepting only the more complex motor skills reported by Mattson) a group of children given specific and systematic training in a function showed superiority over a control group at the end of the practice period. After an interval of disuse, however, there was practically no difference in the ability of the two groups. The one study of vocal ability showed advantage for the practice group both after the training period and after four months' interval. The author concludes that early training in this special ability may bring favorable results. In general, the several studies indicate that early training is less important than

maturation in achieving skill in the motor and mental functions measured. The educator may infer that attempting to teach a given function to a child before he has attained the necessary maturity is a useless expenditure of energy. May it also be a dangerous practice? The physiologist and mental hygienist will answer that question.

PHYSIOLOGICAL AND ANATOMICAL GROWTH

General Bodily Development. Early measurements of children of all ages led Baldwin (2) to the conclusion that "children of the same chronological age may vary greatly in their anatomical and physiological development." Study of the ossification of the carpal bones has been carried on by Prescott (37) and an "anatomical index" developed for use in determining anatomic age. Cattell (14) reports the stage of dentition as a measure of maturity. Anthropometric measurements have also been used to determine the anatomic age of an individual. In all these measurements individual differences are more prevalent and more important than they are usually thought to be, according to Lincoln (32). He reports as a tentative conclusion of the Harvard growth study that each individual is different not only from other children, but also from himself. There is little uniformity in the development of his various traits and abilities. There are important general trends, but also many exceptions. He says:

This high degree of specificity in growth makes it clear that we cannot estimate one trait from the measurement of another, nor can we take a series of measurements early in a child's career and use it unmodified as a basis for prediction of his status at a remote date.

The determination of a child's maturity, then, may be dependent upon many measurements. The usual criterion for school entrance has been chronological age, more recently supplemented by mental age. It would seem that other factors should enter into the conception of readiness for school.

The Hygiene of the Eye. The eyesight of children is of sufficient importance to warrant special consideration. The eye of the six-year-old child is normally hypermetropic, or far-sighted.

At the age when school life begins the visual apparatus is still immature. The orbits, the eyes themselves, and the muscles and nerves which move them, have still to increase considerably in size. The various brain-structures concerned in vision have not only to grow but to become more complex. The intricate coordinating mechanism which later will enable the eyes, brain, and hand to work together with minute precision is awaiting development by training. The refraction of the eyes is not yet fixed. It is usually more or less hypermetropic, with a tendency to change in the direction of normal sight. In short, the whole visual apparatus is still unfinished, and is therefore more liable than at a later age to injury by over-use

British Association for the Advancement of Science. (11)

In the hypermetropic eye, according to Inskeep (26):

The adjustment to see near objects is accomplished by the controlling force of the ciliary muscles. These muscles, like all other muscles of a child, are not fully developed. The effort *any young child* must make to see a near or a small object will, *if long continued*, tend to alter the form of the crystalline lens and produce near-sightedness.

The extent of eye defect among school children is variously estimated: 10 per cent by Inskeep (26), 15 per cent by Terman and Almack (41), about 20 per cent by the British Association for the Advancement of Science (11), and 25 per cent by Berkowitz (3) and the National Society for the Prevention of Blindness (34). The higher figures are reported by investigators who used a cyclopegic in the visual examination. Kempf (30) who tested 1860 children in the District of Columbia with the Snellen chart both before and after the use of a cyclopegic, states:

The power of accommodation in the young is so great that the simple Snellen readings do not reveal all children with hyperopia while the child with myopia is almost invariably discovered by this method.

This investigation showed nearly one-fifth of all children testing 20/100 or worse after the administration of the cyclopegic, indicating that the accommodation necessary to accomplish close work is a totally unsuspected handicap in many children.

Collins and Britten (15), after examining 4862 white school boys and 6479 male white industrial workers, showed that the percentage of persons with markedly defective vision (20/50 or less in one or both eyes) increased steadily after six years of age. The rate of increase was more rapid during school ages than in the early ages of industrial life. Kempf (30) noted a rapid increase of myopia between the ages of seven and twelve. While myopia may not always be associated with over-use of the eyes, as it is found occasionally among illiterates, it is most frequent among the most studious (11).

The school may well pause in its haste to put books into the hands of young children. Ophthalmologists are agreed that close and fine work should be postponed until the eye, which is naturally hypermetropic at school entrance but tends to become normal, is sufficiently developed to be relieved of strain.

The fine finger muscles and the eye muscles are both heavily strained by attempts at education of the ordinary scholastic type before seven years of age.

Kerr (31)

Activities, such as reading and piano lessons, which require a high degree of binocular coordination should be postponed beyond the sixth year (first grade).

Betts (4)

At what age should children begin to read from books? From the hygienic point of view the later the better, and there is reason to believe that little, if anything, is lost educationally by postponing the use of books in school until the age of seven at earliest.

British Association for the Advancement of Science (11)

Betts (5) in studying reading disabilities, lists the following visual items which should be explored before a child may be considered physiologically ready for reading: refractive errors, muscle balance, size and shape of ocular images, visual fusion, monocular and binocular eye-movements, interpupillary distance, and visual imagery. In addition, medical examination of the mouth, nose, throat, and ears for possible defects should be made, and tests of eyedness and handedness. He makes the following recommendation:

Before entrance to the first grade every child should be thoroughly examined by a competent eye specialist. A certificate of visual readiness to read should be required. The number of visual aberrations among both able and disabled readers makes this a mandatory policy for adoption by all school administrators.

In summary, we may emphasize again the tendency to specificity in human growth, making it necessary to obtain more than one measurement of a child's maturity. Studies of growth in recent years have made it possible to determine physiological maturation by observing ossification of the carpal bones, by a study of dentition, and by anthropometric measurements. Specific study of the eyes of children reveals the fact that at school entrance vision is naturally hypermetropic, tending to become normal unless undue strain intervenes. The extent of eye defect increases rapidly during early school years, indicating that the school is guilty of great harm by too early attention to close work. Ophthalmologists agree that children should not use books until the age of seven. Detailed tests of physiological readiness for school should be required of every child.

MENTAL HEALTH

No one will question the importance of success in the mental health of an individual. The point of view has been admirably stated by Burnham (12):

The teacher's function is to give every child the opportunity for a fitting task; and it is the business of the teacher not only to perform this function every day, but in some way, at some time, in some subject, to give every child the stimulus of a distinct success.

It helps the teacher, if one understands clearly that to solve this problem of success for the individual pupil is a prime duty, for the neglect of which no pressure of conventional demands is an excuse, and that for one's own failure in this no other professional success can atone.

If a child's first experience with school results in defeat or failure, it is likely to cause great harm to his personality (1). Maladjustments traceable to failure in school are a feeling of inferiority, compensation by success in extra-school activities, discouragement and loss of interest in school, blaming someone else for the disability, misconduct to attract attention, and daydreaming (9, 12, 25). The basis of the difficulty, according to Blanchard (9), "may be found, in many instances, in the emotional experiences of the child during his first attempts to learn to read." Jersild (27) believes that

A premature attempt to force a child's progress in a particular activity may encourage resistant and negativistic behavior, such as temper tantrums.

Thomson (42) reports the emotional responses of first grade pupils to reading, as recorded over a four-year period. During the first two years one-half the children in the first grade were from 5-2 to 5-10 years old. During the second two years a chronological age of six was required for school entrance and children of poor physical, mental, or emotional endowment were allowed to wait until approximately seven. Of 240 children in 1930-1932 (younger group) only 19 liked reading, while 221 preferred other activities and 105 were anxious about their success in that subject. In the years 1932-1934 194 children were enrolled. Of these, 176 reported that they liked reading, while only 18 preferred other activities and 6 showed anxiety. The author reports a 90 per cent decrease in the number of second grade children developing difficult social, emotional, and mental habits during the final year of her study.

Because of the need of success, particularly in beginning school, and the serious personality maladjustments attendant upon failure, it is of vital importance that the curriculum be designed to eliminate the possibility of failure, and to make possible a feeling of accomplishment for every child.

READING DISABILITY

Specialists in the field of reading disability tell us that the postponement of reading instruction may be expected to reduce the number of disabled readers. Betts (5) states:

It is fairly safe to assume that a major portion of reading disabilities might be forestalled through proper medical measures and the postponement of the initial "learning to read" period.

Stone (39) says:

In the case of children with mentalities appreciably below normal, the most important cause of reading disability appears to be the practice of exposing children to beginning reading before they have reached the pre-

requisite maturity. It is now generally recognized that a child should have a mental age of at least six years to six and one-half years before he is exposed to systematic instruction in beginning reading. Earlier attempts to learn to read involve the risk of failure and the consequent discouragement and dislike for reading, together with the acquirement of habits tending to inhibit further progress in reading.

Davidson (16), investigating reversals in kindergarten and first grade children, reports that the tendency to make reversals is fairly common, but that it decreases with age and maturity. Hildreth (23) in a similar investigation of children of elementary school age, found a decline in the tendency to make reversals in the higher grades as contrasted with the lower grades.

SUMMARY OF BIOLOGICAL AND PSYCHOLOGICAL STUDIES

From the studies reported, it is possible to summarize as follows:

1. Experiments in animal behavior (8, 10, 13) lead us to believe that the development of certain functions is more dependent upon age and maturity than upon practice.
2. Studies of child behavior in motor and mental functions (19, 20, 21, 22, 24, 28, 29, 33, 40) indicate that early training is less important than maturation in achieving skill in the functions measured.
3. One experiment in vocal ability (28) seems to imply value of early training in that special function, before the tonal range becomes fixed.
4. Measurements of anatomical and physiological maturity (32) have given us the knowledge that growth in the various traits and abilities shows little uniformity. It is necessary to obtain numerous measurements to determine the level of a child's development.
5. Indices of anatomic age have been compiled through study of ossification of the carpal bones, the eruption of the teeth, and various anthropometric measurements (14, 37).
6. The eyes of the child entering school are naturally hypermetropic, becoming normal unless they are over-used (11, 26).
7. The extent of eye defect increases rapidly during the early school years (11, 15, 30).
8. Ophthalmologists agree that children should not be required to read from books until the age of seven at least (4, 11, 31).
9. Betts (5) points out the need for tests of physiological readiness for every child before he enters school.
10. Mental hygienists emphasize the need of success in school for every child, and point out the maladjustments that may arise from failure (1, 9, 12, 25, 27, 42).

11. Studies of reading disability indicate that many cases of non-reading or poor reading might be prevented by postponement of the period of teaching reading until the child had reached the necessary maturity (5, 16, 23, 39).

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THE PHYSICAL MAKE-UP AS RELATED TO CRIMINALITY¹

E. KOST SHELTON, *Santa Barbara*

I have been asked to address you on a very old and controversial subject, namely, that of the physical make-up as related to criminality. This subject in one form or another, since the time of Panizza and of Marzolo and his pupil Lombroso, has never ceased to intrigue the student of crime. It is also interesting to note that the contemporary conception has closely paralleled the advance of science. In a day when Darwinism colored the thoughts and writings of men, the zoologist and later the anthropologist talked convincingly of criminal types. Atavism became a scientific household word, and any one with a pair of pointed ears or an overhanging brow came in for his share of suspicion. The expressions "low-brow" and "high-brow," now somewhat modified in meaning, originated in this conception.

Somewhat later a school of logicians whom I shall designate as the constitutionalists came into vogue. They too, while not explaining the type make-up in terms of atavistic tendencies, depended solely upon anatomic variation to explain the vagaries of the world. To them, one was destined by inherent tendencies to a fixed mental and physical pattern. The psychologist then informed us that criminality was closely allied to mental defectiveness, and that most if not all criminals were morons—a deduction which recent investigators tend to refute.

I have purposely omitted other schools, such as the behavioristic, the psychiatric, and so forth, for the reason that their main interests lay in the realm of the abstract. They laid no claim to measurable physical differences in their subjects, and beyond a classification of aberrant mental activity resulting from a combination of circumstances, refused to type.

HUMAN ORGANISM BIOCHEMICAL

During this same period a new school was arising—one not merely of logic, although it has smoldered in the minds of thinkers for over a hundred and fifty years, but one of concrete physical evidence that man, as every other organism, is essentially a biochemical

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E. Kost Shelton, M. D., is director of endocrine research, Santa Barbara County (California) Clinic; executive staff member of the Santa Barbara County and St. Francis Hospitals; member of staff of Cottage Hospital; special research adviser, University of Southern California College of Dentistry; associate clinical professor of medicine, University of Southern California; Secretary-Treasurer and member of council, Association for the Study of Internal Secretions. He is author of numerous articles on endocrinology and allied subjects.

machine. There is no room in this paper for other than the most casual mention of the steps leading up to such a conclusion.

In 1775 a French physician by the name of Bordeu propounded the theory that every organ in the body gives off into the blood stream a secretion which is necessary to the normal body economy. Stock growers had known of the somatic changes incident to castration in beast and fowl, and had benefited commercially thereby, for perhaps a thousand years. It remained for Bordeu, however, to ponder this phenomenon and recognize in the variable configuration of man a possible human corollary. Strange to relate, few even well-informed men in this enlightened age can intelligently discuss the differences in body make-up and behavior between the cock and the capon, the bull and the steer, the stallion and the gelding, or the virile man and the eunuch.

In the early nineteenth century, the father of modern physiology, Claude Bernard, propounded the first theories of carbohydrate metabolism and proved the role of the pancreas and the liver in this process. About the same time Thomas Addison, an English clinician of renown, described the life-sustaining suprarenal glands and gave a classic description of the body changes incident to their disease or removal.

In the last half of the nineteenth century, Gull and Ord described a disorder of the thyroid gland which produced profound mental and physical deterioration, and which could be prevented or cured by the internal administration of thyroid juice secured from animals. About the same time Pierre Marie first wrote of the remarkable skeletal and soft tissue changes incident to acromegaly and gigantism, which, a few years later, Minkowski proved to be a disturbance of the pituitary gland.

From here on, to trace the steps leading up to our modern knowledge of the subject would be to repeat the most amazing chapter in the history of medicine. The discovery of insulin by Banting and his co-workers gave the work its greatest impetus, but Abel, Evans, Long, Cushing, Aschheim, Zondek, Collip, Riddle, Kendall, Hartman, and a host of others are equally outstanding in their contributions.

Suffice it to say that now we know without peradventure that man may become a victim not only of heredity and of environment, with which we have become so familiar, but of his own biochemistry and perhaps that of his mother's as well. In the normal state of well-being, the body biochemistry is balanced by a fineness and precision unequaled by any similar process devised by man. To avoid physical and mental deviations from the normal, it must be kept in constant equilibrium.

IMPORTANCE OF CHEMICAL EQUILIBRIUM

Let us name only a few of the more common elements and compounds upon the proper levels of which, in the blood and the tissues, one depends for normalcy: calcium, phosphorus, iodine, sodium, chlorine, fats, proteins, various acids and bases, and, last but not least, sugar. The human calcium level must be kept somewhere between seven and eleven milligrams for every hundred cubic centimeters of blood, otherwise something dire is almost certain to happen. Perhaps I need not remind you that a milligram is one-thousandth of a gram, and a gram is approximately the amount of calcium one could hold on the blade of a small pocketknife. The nervous system demands calcium in this small amount to keep it from becoming completely disorganized. When the blood and tissue calcium falls below a certain level, one becomes jumpy, nervous, irritable, hypertonic. If unrelieved, one develops convulsions and dies. If the calcium remains at too high a level, the normal tone of all smooth and striped muscle is lost. Instead of convulsions or overtone, one becomes weak and flaccid, his bones fracture spontaneously, he shrinks in stature and becomes apathetic, and if unrelieved, he ultimately passes to his reward.

Carbohydrate or sugar metabolism is no less spectacular in the body economy. Aside from the necessary minerals, there are essentially only three types of foods: carbohydrates, proteins, and fats. Upon the first (sugar), a quick-burning fuel, we depend for most of our rapid energy. It is stored about equally between the liver and the muscles. In health, the circulation carries between 80 and 120 milligrams per hundred centimeters of blood. Consistent values below or above this means that one is burning sugar too rapidly or too slowly, as the case may be. Certain mental and physical changes ensue. If the blood and tissue values fall low, one develops a train of symptoms not unlike the let-down following fright, namely: extreme nervousness, apprehension, tremor, excessive perspiration, and weakness; and if too low, he dies in shock. If, on the other hand, the values become very high, one has diabetes, and if unrelieved, he expires in coma.

So on and on one could go, starting with hydrogen, the ionization of which determines body acidity and therefore electrical energy, much the same as it does in the battery of a car; through oxygen, a primary essential; to their simple compound H_2O , and thence up through myriad compounds of all the elements which only an omniscient creator could devise.

HORMONES AS REGULATORS

What regulates this remarkable process? Is it the brain and central nervous system? It is not. Conscious activity has little or

nothing to do with it. Numerous experimental animals have been almost completely decerebrated without producing much change in the body economy. If the respiration centers in the brain are destroyed, the animal dies from respiratory paralysis but not primarily from disordered biochemistry. Man's vital functions go on automatically when the brain and central nervous system are completely at rest, as attest sleep, anaesthesia, and unconsciousness following severe injuries to the head.

The body biochemistry is kept in constant balance by hormones or chemical excitors manufactured and given off into the blood stream by a group of small secreting organs called the endocrine glands, and also perhaps by internal secretions given off by other tissues, such as the liver, the stomach, the heart, muscles, and bone marrow, which heretofore have not been, and indeed are not now, considered a part of the endocrine system. The glands themselves are kept in constant functional equilibrium by the autonomic or automatic nervous system, which is more or less independent of the central nervous system, or the brain and spinal cord.

THE ENDOCRINE GLANDS

We are not concerned with these glands other than to mention them and say a few words regarding their specific functions. First there is the pituitary, fast being recognized as the major-domo of the entire endocrine system. It lies just beneath the brain and is known to control body growth, the development and function of the sex glands, and the production of milk, and to enter intimately into the utilization of sugar, the metabolism of water and fat, and the development and function of the other endocrine glands.

Second is the thyroid, which many still feel was put in the neck to produce goiter, but which, I assure you, has a more profound duty to perform. While not essential to life, its active principle is necessary to the well-being of every cell in the body from birth until death, and many bizarre symptoms, both mental and physical, result from the withdrawal or the overproduction of its secretion. Its primary duties are: (1) to regulate oxygen exchange, and in this respect it acts very much as the main draft to a furnace; and (2) to enter intimately into the development of the brain, the bony framework, and other somatic tissue.

Third are the parathyroids, four in number, lying behind the thyroid, which to a large extent regulate calcium and phosphorus metabolism.

Fourth is the pancreas, one of the main regulators of sugar metabolism.

Fifth are the suprarenals, two in number, one lying just above each kidney; they mobilize sugar from the storehouse of the body under emotional stress, particularly in an emergency, and prepare one for flight or fight, according to one's inclination or training. One portion, the cortex, is essential to life; and the secretion, as one would infer, enters into many vital functions of the body.

Sixth are the gonads, or sex glands, both male and female. While directly under the control of the pituitary, they themselves give off internal secretions having a direct bearing upon the physical make-up and behavior of the individual.

Seventh are the liver, the stomach, and other tissues giving off internal secretions (probably hormones) which are essential to the normal body economy.

Each of these glands secretes one or more active principles or hormones directly into the blood stream. The duties of the hormones are to travel about in the circulation and to administer the various biochemical processes for which they are intended. Many of these hormones have been isolated in a relatively pure state and are used in clinical medicine every day. To mention only the most common: pituitrin from the pituitary, thyroxin from the thyroid, parathormone from the parathyroids, insulin from the pancreas, cortin and adrenalin from the suprarenals, and theelin from the ovary. Each and every one of these, when administered to animals, including man, can and will produce profound, easily measurable, chemical differences in the blood and the body tissues.

It has been shown that the glands of which we speak function in one of three directions, namely: oversecrete, undersecrete, or secrete normally, that is, manufacture and pour into the blood stream only a sufficient amount of their active principles (hormones) designed by nature to keep the body in constant equilibrium. Since some hormones are directly concerned in growth and development from the very beginning of the fertilized ovum, while others have little to do with these processes, it can readily be seen how aberrant secretion of some would result in obvious body changes, while aberrant secretion of others would not be manifest in the physical make-up. These latter disorders are obscure, and often go undetected for years.

RELATION TO CRIME

What, if anything, has all this to do with crime and delinquency? Frankly, I do not know. However, twenty years of intimate contact with people in trouble, both physical and mental, and I might also add economic, have made me feel that perhaps the old observers were not so far afield. Haynes' first model of an automobile is but a pitiable relic beside the modern Juggernaut of the highway, and yet the basic

principle of automotive power is embodied therein. I must remind you that medicine has advanced at an equally rapid pace with transportation and communication, or with the electrical transmission of sight and sound. The radio with all its tubes and crooners is not half so complicated as the pituitary-ovarian mechanism in reproduction alone. By this I do not mean that Lombroso was correct in his assumption that criminals have anthropologic or anthropometric findings in common, or that the criminal is (inherently) a physical type. But that human behavior can be and is continually modified by the physical status of the individual, there can be little doubt.

EXAMPLES OF MODIFIED BEHAVIOR

Let us go back to the more simple and obvious physical departures from the normal by way of explanation. The effect of chronic indigestion upon the mental attitude of man is axiomatic. Exceptions are numerous; but as a rule, chronic disorders from almost any cause result in a peevish, petulant, selfish nature or else a martyr complex, sometimes even more disconcerting. Such sufferers frequently interpret the world in terms of their own illness, and act accordingly. The same may be said of those afflicted from any disfiguring deformity, ranging from acne to gross congenital deformity, or from harelip to Pott's disease of the spine. History records the cruelty and the cunning of the hunchback. His wit as the court jester was at best a poor attempt at compensation. In the light of our modern knowledge, we know that the world laughed at him, or at least he thought it laughed at him, and therefore he set out to avenge himself upon the world.

It perhaps seems queer that I should even remotely think of pimples as a possible cause of crime, and yet some of the worst resentment complexes I have witnessed have been grounded in individuals with acne vulgaris. Man has enough difficulties to overcome in life without the knowledge or even the subconscious feeling that he cannot get the position he desires or the girl he loves, or attain the social level to which he aspires, as the result of a pus-oozing, disfigured face. I shall let you build up a hypothetical resentment complex in such an individual and speculate upon a possible result.

Some of the most interesting somato-psychic behaviorisms observed by me have come in excessively fat persons, principally women and children. Many of the male children are not only obese but have genital hypoplasia, overdeveloped mammae, knockknees and the general female configuration (adiposo-genital dystrophy or Frohlich's syndrome) as the result of glandular imbalance. Not all of the individuals in this group are so afflicted, but, irrespective of the etiology, the psychic insult remains the same. Stamped in childhood

by nicknames both abhorrent and disparaging, wallflowers in adolescence, frequently prevented from making a desirable marriage, psychically traumatized by a thousand thoughtless jests of tongue and pen, these unfortunates frequently reach adulthood only to learn that they are heir to a variety of disorders and, statistically speaking, may expect an early demise. The jolly fat man or more particularly woman is one who has taught himself or herself to hide under a pleasant exterior the heartaches and the resentment against a cruel and misunderstanding world.

I once knew a successful life insurance agent who was afflicted with harelip and cleft palate, and wormed out his story. He told me that for fifteen years he had made it a point to learn of and visit every like individual within his range of knowledge. Almost without exception they were in menial positions—beaten, downtrodden, discouraged, and suffering from resentment complexes against their fate. It was only after this sad experience that he saw the futility of such a mental attitude and decided to make the best of it. But how many have such insight and stamina?

There is another type of child of interest to those entrusted with public instruction. He is not an endocrine patient in the strict sense of the word but may, and frequently does, carry many of the stigmata of an endocrinopathy. I speak of the left handed right eyed or the right handed left eyed child suffering from strephosymbolia or congenital reading difficulties. He is nearly always a poor or failing student and develops compensatory behaviorisms frequently mistaken for incorrigibility or even mental defectiveness. I know of no child so misunderstood and so inadequately treated. The repeated heart-breaking experiences of a failing report card plus the clumsy inferences of a careless parent or teacher regarding his intellectual status, produces either a defeat complex, from which he never recovers, or makes him seek a low strata of society where his shortcomings will not be noticed. Since many of these children are adept in other subjects as art, music or the crafts, they compensate well if skillfully handled. Others build a pattern based upon physical rather than intellectual prowess and if denied the proper athletic outlet because of academic failure, become bullies and toughs. Highly specialized instruction, proper refraction and patient treatment will rehabilitate the majority in this group.

Also, under the head of physical disabilities, need I mention the myriad sufferers from inherent mental defectiveness (subnormal brain development), those with personality changes following such disorders as encephalitis, meningitis, and other severe infections, birth and post-partum injuries to the brain. Most of these disorders are obvious but many go undetected until some bizarre crime brings them to light. You

as students of crime may be familiar with all this, but it is doubtful if many of these our physical disabilities are taken into consideration in the analysis of delinquent behavior. It is doubtful if there are even statistical data dealing with such simple matters, in the annals of our prisons.

QUESTION OF "CRIMINAL TYPE"

I said in the beginning that my subject was to be the physical make-up as related to criminality, and I have continually avoided mention of a so-called "criminal type." There is a reason. When I say that I feel criminals cannot be typed anthropometrically, I mean exactly that. In speaking of the physical make-up, however, I am equally certain that aside from the more obvious deviation from the normal of which I have just spoken, there is a large group whose physical peculiarities are obscure but none the less real, namely, those suffering from disordered biochemistry and autonomic imbalance. Different levels of metabolism, using the word "metabolism" in its broadest sense, make for different reactions of mind.

METABOLISM AND MENTAL REACTIONS

Allow me to simplify this by referring to a few hypothetical states which are common experiences in the lives of discerning physicians. We shall arrange for two high-school girls, sisters if you wish, with exactly the same heredity and environment, to occupy the same room at home. During some acute illness the one "A" has received damage to her thyroid gland resulting in approximately 50 per cent loss of its normal function. The other "B" has recently been robbed and has barely escaped criminal assault. There has been set up within her an autonomic imbalance with resultant hypersecretion of the thyroid gland.

"A" becomes dull, listless, fatigued, cold, constipated, and depressed. She puts on weight. Her memory is poor. School grades suffer. She wears heavy clothing, enjoys hot weather, wants the windows closed all the time, and is not interested in the opposite sex. "B" becomes euphoric, nervous, hyperactive, hot, and apprehensive. She loses weight. School grades also suffer. She cannot bear heavy clothing, enjoys cold weather, wants the windows open all the time, and develops an abnormal sexual urge.

Will these girls be happy in each other's presence, or, to carry the figure further, in any one's presence? I can assure you they will not. Neither will any one else be happy in their presence. Suppose they have a neurotic mother or a shiftless father, and that in addition they are in financial straits. How can one escape such a predicament, at least in part? (1) By the mental route—insanity, schizophrenia, and

other split-personality or dreamland states; (2) by recourse to intelligent medical care or surgical intervention; (3) by recourse to intelligent social and economic relief; or (4) by revolting against the situation.

I will again leave to your imagination in just what manner one would revolt, but I am not so certain it could not result in fratricide, matricide, sororicide, suicide, or any other crime against organized society. Then, of course, one would become criminal, and the law, without the least idea of the chain of circumstances leading up to the crime would seek its revenge.

The bone development of a child (as ascertained by the x-ray) in relation to his (or her) chronological age is an excellent means to ascertain the developmental status. As I have previously stated, the thyroid hormones have much to do with the development of both the nervous and the osseous (bony) structure. Retarded bone development is therefore, frequently, if not always, on the basis of a thyroid deficiency. Children deficient in thyroid secretion range from the idiot level of intelligence, as in cretinism, to those with only minor behaviorisms. Unfortunately, the borderline cases are rarely thought of as suffering from thyroid disorder. Recognized early and adequately treated, many of these children can be completely rehabilitated.

CASE STUDIES

As I write I can think of a number of children who have responded promptly to thyroid substitution, but as we are discussing behavior rather than intelligence I shall cite one case in point. Something over a year ago I was asked by a mother to see her child (a boy), age 10 years, who was an outstanding behavior problem in school. The boy had been studied by the Child Guidance Clinic and found to be intelligent but so far as school was concerned, practically incorrigible. It is unfortunate that I cannot go into the details of this interesting case but suffice it to say he was discovered to have a three year retarded bone development and given thyroid. Six months later his behavior pattern had been practically reversed. He was a kindly, understanding child and a leader in his class. The case caused no end of comment on the part of his parents, his instructors and the attending psychologist, but it is in no way outstanding.

As regards carbohydrate metabolism, I have under my care a girl of nineteen who was perfectly normal and happy until her senior year in high school. At that time she developed a large appetite and peculiar behaviorisms characterized by extreme restlessness, incoordination, trembling, and unreliability. She received very poor marks but managed to graduate. Feeling an interest in laboratory technique, she applied for an apprentice position and promptly lost it.

Later she secured another opportunity and was retained in the second position for some weeks, only because of the interest and kindheartedness of the laboratory chief. This is her record. The laboratory (glassware) breakage was about five times what it should have been. She made serious mistakes in charting. She was so restless that she would leave the laboratory seven or eight times in the forenoon and late afternoon. Rather pathetic willingness but total unreliability marked her brief career.

On studying this girl, I discovered that she had a remarkably rapid carbohydrate utilization. In fact her blood sugar was repeatedly so low that I do not see how she escaped severe shock or even convulsions. The girl was naturally discouraged and not a little resentful by her continuous failure, because she was doing her best. The disorder can probably be corrected, but who can say what it may have led to, or even yet may lead to, as regards her reactions to her surroundings.

Little children frequently steal money to buy candy for an unrequited and unsatiable sugar urge. This may be either inherent or acquired. May not the surreptitious marauding of the jam jar be the beginning of some criminal careers? Not long ago I had the privilege of seeing a boy fifteen years of age who was being penalized for his fifth or sixth petty offense. I asked him why he stole, and he said, quite naturally, "For money." "What do you do with the money?" I inquired, and he replied that he bought candy and soda water with it. When he was in funds, he had plenty of candy and several ice cream sodas a day. Further inquiry revealed that his parents were poor and that he never had even a pittance which he could call his own. Couple this physiological urge, no matter how ignorantly acquired, with a low degree of intelligence, and one gets delinquent or even criminal behavior.

MISUNDERSTANDING OF SEX FACTOR

I could cite a hundred theoretical possibilities concerning the effect of aberrant biochemistry upon human behavior, from simple hunger to the complicated fear mechanism of Cannon, many of which I have studied intimately; but space will not permit.

The sex urge alone is an enormous and a much misunderstood problem. Nearly everything in nature revolves around it as satellites around the sun. Freud and his pupils would put all this upon a purely psychic basis; but according to the functioning of their endocrine glands, men and women are physically oversexed, undersexed, heterosexual, or not sexed at all. Nature matures men and women at about fifteen and thirteen respectively; the law says, "I will overrule nature and make this much older—the age of consent." Shall we call a

boy or a girl criminal or even delinquent because he or she has an unguided sex urge and carelessly succumbs to nature's laws before reason and experience have taught them better, and then pin a golden medal upon the breast of the virgin whom nature has not so richly endowed?

Menstruation and masturbation are two very disturbing factors in the adolescent period. Many mothers still cling to the old idea that menstruation is a pathological rather than a physiological problem, and raise their daughters to be menstrual invalids. Some girls do have pain; others suffer from disturbances of the rhythm or some other aberrant menstrual function. The majority of these ills are endocrine or glandular in origin and should be adequately investigated, but there is no excuse for the prevalent hysteria. As regards masturbation, I am convinced that the anxiety state produced in the minds of youngsters by over-zealous parents and teachers is infinitely more harmful than the act itself. Adulthood is full of neurotic, self-conscious, shut-in individuals suffering from a guilt complex or a fear of insanity because of some early psychic trauma. In oversexed or abnormally sexed children, as in macrogenitosomia, due to a disorder of the pineal or adrenal glands, the problem needs understanding, segregation and treatment but never ridicule. Many sex crimes can be definitely traced to disorders of the endocrine system effecting gonad development and function. For these reasons one must study sex from the biological viewpoint and not solely from the conventional or sentimental angle.

I might say here, in defense of the psychiatrist and the psychologist, that aberrant function of a number of these organs is not necessarily due to organic disease of the glands themselves. If it is true, as I have stated, that one's mental reactions are buffeted about by the whims and fancies of his internal secretions, it is equally true that one's secretions are constantly victimized by his emotions. This is the classic vicious circle.

I wish to make it clear that I have no patience with the half-baked theories concerning the effect of the endocrine system upon the personality traits of mankind. Not long ago I read of a man who would have us believe that all sufferers from a high basal metabolic rate were either potential or actual murderers, while those suffering from a low basal metabolic rate were either potential or actual second-story men, or some such nonsense. Another contends that mumps, through a destructive influence upon the sex glands, is perhaps the most common cause of the inferiority complex in mankind. All this, to me, is rubbish. For one who knows nothing of the subject, however, to cloak his ignorance in incredulity as regards the effect of

metabolic or biochemic imbalance upon the reactions of mankind to his surroundings, is equally bad. The truth lies between.

MEN NOT EQUAL SCIENTIFICALLY

In conclusion I wish to say that the great emancipator was, if not politically at least scientifically, in error when he said that "all men are created free and equal." Neither do they spontaneously acquire freedom or equality as regards those physical and mental attributes essential to normal existence. Life is composed of a series of adjustments to heredity, to environment, and to one's own physical peculiarities, from the cradle to the grave.

Physical disability, either apparent or obscure and of whatever nature, is only one of the contributing factors in the making of a criminal. Given a good heredity, pleasant surroundings, and freedom from economic distress, and it is doubtful if many suffering from an endocrine disturbance, autonomic imbalance, or any of the more obvious forms of physical disability would actually develop criminal behavior, unless, of course, the disability would lead directly to derangement of the mind.

The physical problem, both in and out of penal institutions, is not studied either adequately or sufficiently often for one to evaluate its usefulness or uselessness in the prevention or even the simple understanding of crime. It is an expensive and time-consuming research, but one pregnant with possibilities concerning the ultimate elucidation of the delinquent or criminal mind.

MASTER TEACHERS AND MODERN EDUCATION

PAUL R. HANNA, *Associate Professor of Education,*
Stanford University

THE NEW ROLE OF ELEMENTARY EDUCATION

Powerful currents in our culture are sweeping us from familiar moorings. Ancient man likewise was swept by currents—but not so swift and not so powerful. The differential between primitive man and modern man in speed and thoroughness of change is not the major point of contrast, however. The most significant difference is in the amount of conscious control of the change. Primitive man did not know the source of the currents nor the principles by which the change could be controlled and directed. Modern man has made tremendous advance in this respect. He has learned to use intelligence, the spirit of inquiry, the scientific approach, the experimental method, and is relying less on his older controls of magic, superstition, intuitivism, and blind authority. This substitution of intelligence for superstition is an advance more profound than any other one factor in man's progress.

Through this application of the spirit of inquiry man has learned to control nature. Throughout the ages man has been at the mercy of his physical environment, and his greatest effort has been required to adjust to it in order to maintain human life. Now man stands as the young master over the scientific principles and their applications. Man knows how to make nature yield him ten ears of corn with full kernels where once one ear grew with uncertainty. Man has conquered not only the two dimensions of the earth's surface, but has developed a third dimension in the air, in the mines of the earth, in the depths of the sea. Man has improved on nature's gift of an eye, and with the telescope he sees into the limitless spaces of the universes or with the microscope he beholds a vast living world in a drop of water; and our scientists promise us new fields of victory in television. We have improved on the human voice and ear by means of the telephone and radio. Man has learned to harness nature to steam, gas, and electric engines. He is no longer forced to waste away his physical energy to the point of exhaustion in toil to keep himself and his family in food, shelter, and clothing. He has even made crude formulations of the principles of evolution of social institutions and may soon learn to design in the social sciences as he now creates in the natural sciences. We live in a scientific age, an age which is so unlike that of our forebears, that it constitutes a civilization different in kind rather than in degree; an age when technology and science can provide plenty and

security and leisure which are basic to a life that is good to live and one in which creative individuality will naturally flourish.¹

In such a conception of conscious cultural evolution education may play a tremendous role. The designers and participants of this rational evolution—the men and women of our American commonwealth must have the understanding of these forces and their controls. The American people must have the skills and the attitudes for utilizing these new forces in the interests of the common good. And the roots of these new understandings and attitudes are nurtured in the classrooms of our elementary schools.

THE PURPOSES OF ELEMENTARY EDUCATION DETERMINE THE ADMINISTRATIVE AND INSTRUCTIONAL PROGRAM

If elementary education is to contribute directly to the reconstruction of American life certain fundamental changes must be made in the theory and practice of our elementary schools. The educational program of a school can be formulated only in terms of the purposes which are consciously or unconsciously held by those in authority. Unfortunately, too many workers in elementary education attempt to organize and administer their schools without a clear vision of the place of elementary education in contemporary American life. Their efforts to formulate educational objectives too often result merely in a restatement of the goals held a century ago when we were developing our free public school system.

THE EDUCATIONAL PURPOSES IN AMERICAN FRONTIER LIFE

Obviously the type of elementary education suitable for the life on the American frontier of one hundred years ago was a relatively simple thing, consisting mainly of skills in the three R's. Most of one's education in that day came through actively participating in the work and play of the family and community. Children had an important responsibility in the economic enterprises of the home. They learned through actual toil the relationships of the soil, climate, and human labor to the amount of food, clothing, and shelter available to the family. They helped in the essential processes of production of clothing from herding the sheep or planting the cotton to the final fitting of the homespun garments. These children lived through the processing of food from the sowing of the seeds to the baking of the bread in the home oven. Similarly, children learned most of the important lessons essential to the good life on the American frontier by a first-hand participation in the labor necessary to produce, distribute, and consume the basic goods and services which constituted

¹ This paragraph is adapted from "Romance or Reality: A Curriculum Problem," by the author in *Progressive Education*, XII (May, 1935), 318-323.

the life of that day. Consequently, the school of the American frontier set as its almost single purpose the training of children in the tools of learning (conceived as reading, writing and arithmetic), and thus formal education supplemented the more fundamental education in skills, knowledges, and attitudes which were more or less informally acquired through continuous participation in the affairs of the home, church, and community.

NEW PURPOSES REQUIRED OF THE SCHOOL IN CONTEMPORARY AMERICA

The fact that our children are living in a world strikingly different from the one just sketched is obvious to everyone. The fund of organized knowledge is vastly more complex today in the fields of science, social sciences, aesthetics, ethics, philosophy, etc. Further, the position of childhood in society has been greatly changed. No longer is it possible for children and youth to learn day by day important concepts and attitudes through participation in the work of the community. The wide-spread use of power (gasoline, steam and electricity) and complex machinery have deprived our children of these vitally necessary educational experiences. Not only are the children denied first-hand contact with the serial processing of our common food, shelter, and clothing, but are relieved of the responsibility of contributing to group welfare in any significant manner. This situation develops selfish and antisocial attitudes. Youth today lack emotional loyalty to our democratic ideals because they live in a world which is constantly thwarting them by denying them the chance to practice the principles of cooperation in the pursuit of commonly held goals.

The elementary school must seriously accept as one of its new purposes the task of teaching children and youth those democratic values of service to the group, equal opportunity for all, freedom, justice, cooperation, happiness and security; not alone an intellectual understanding of these values but the development of the loyalties and emotional responses which are essential to their safeguarding.

Further, the modern school must assume the responsibility for developing an understanding of our emerging pattern of culture; its potential strengths and its possible weaknesses, its promise of material abundance, and leisure time in which to develop rich personalities and a golden age of American culture. The core of this second major purpose consists of a comprehensive study of the present—the realities of our contemporary world. These realities include such major social functions as production and distribution of goods and services, protection and conservation of life and natural

resources, transportation and communication, education, recreation, extension of freedom, expression of aesthetic impulses, expression of religious impulses, and the integration of the individual.

NEW PURPOSES DEMAND MASTER TEACHERS

In organizing a school to achieve such purposes as have been suggested, it is essential to consider first the *selection and training of teachers*. We are all aware that the learnings in the classroom are no better than the ability of the teacher to select for her pupils worth while activities and to guide the development and culmination of these activities in the best possible manner. Consider for a moment the type of teacher training adequate to the task of guiding children in the exploration of one phase of transportation, namely, aviation. The teacher must be familiar with such myths and legends of "wonder flights of long ago" as Daedalus and Icarus, Phaethon, Pegasus and Bellerophon, The Magic Carpet, Perseus and the Gorgon's Head, Sindbad's Second Voyage, etc. She must know something of the history both of lighter-than-air and heavier-than-air flight including the contributions of such men as Leonardo Da Vinci, Cavallo, the Montgolfier brothers, Professor Charles, Count Zeppelin, Santos-Dumont, Henson, Stringfellow, Langley, the Wright brothers, and a host of heroes who made modern flight possible. The teacher should know something of the principles of flight, air-dynamics, and navigation; something of internal combustion engines and even of rocket engines; something of the principles of meteorology; of the use of balloons, dirigibles, and planes in war and peace. An imagination as to the future influence of air travel on the people of the world would be essential. The scientific and social-science principles and their application to the area of aviation clearly demand an intellectual equipment and scholarship of the highest order. And the same is true in dealing with any aspect of modern living. Children demand pertinent facts and clear explanations about the origins, current practices, and future possibilities in a multitude of enterprises and a teacher must be equipped to guide children in their quest for such knowledge.

To put the problem negatively, imagine a teacher whose intellectual boundaries are no wider than the curriculum she studied in the normal school of a decade ago, trying to measure up to the task imposed by the modern elementary school curriculum. No amount of administrative pronouncement or manipulation by a principal can compensate for the lack of a thorough intellectual training of the classroom teacher. A teacher must be intellectually conscious of the new task and adequately trained if the school is to make a major contribution to social reconstruction.

SOME NEEDED ADJUSTMENTS

In order to obtain a staff of teachers adequately trained for this task, certain educational changes will have to be made. In the first place, we must cease to think of the elementary school period as less important in a child's development than the later years. Certainly the elementary period is no less difficult for the child and teacher. Specialists in physical, emotional, and mental development of children indicate that each period has its own peculiar problems, but if any period requires more knowledge and competency on the part of teachers than another, it is the period of infancy and immaturity—the pre-school and elementary school years. We are not on a sound foundation when by lower minimum years of training, lower minimum salary schedules, etc., we differentiate between teachers in elementary and secondary schools to the detriment of the younger children.

Once the comprehensiveness of the task of elementary teachers is understood in terms of the professional knowledge and skill required in dealing with the psychological and physiological maturation of children, understood in terms of the complexity of modern society and teachers' ability to assist children to sense the important relationships therein, once we grasp the full significance of teachers in the lives of elementary children in contemporary America, we shall require just as much native and acquired competence of elementary teachers as of teachers of any level. In order to obtain such competency in elementary classrooms, salaries must be paid that will be sufficient to induce the ablest young people to prepare for a life work on this level. And these same high salaries will make it possible for the elementary teachers to keep abreast culturally and professionally through travel, study, recreation, and such pursuits as will enrich their knowledge and skill.

It is not unreasonable to expect that eventually all teachers of elementary children shall have the equivalent of a four-year liberal arts college course, plus one year of concentrated professional study, one year of internship, and opportunity for first-hand participation in one or more areas of social-economic endeavor—agriculture, industry, business, social service, home making, etc. It is hard to conceive how our newer purposes for elementary education are to be achieved unless our workers have some such pattern of development and training.

An adequate training period for teachers is not of itself sufficient. Opportunities must be provided for continued growth for teachers in service. If we receive into our schools live, vibrant personalities from the training institutions and then so organize and administer the school that these new teachers are exhausted in a round of

professional responsibilities, the results will be disappointing. The teachers must be protected from annoying interruptions and from too much routine detail. They must be spared the fear of insecurity which often results when the best educational program runs counter to outworn customs or vested community interests.

But even more is necessary. Teachers must have opportunities to replenish and revitalize their professional equipment, to enrich their personalities. Opportunity must be available for teachers to participate in such recreational activities as music, literature, dramatics, painting, dance, and sports. Teachers should be encouraged to partake of the social, economic, and political life of the community. They should visit modern factories and farms and up-to-date transportation and communication centers to see the new forms of power and the new machines which make possible the potential wealth we are striving to utilize rationally. In short, we must organize and administer our schools so that we foster rather than inhibit those priceless qualities of good teachers—an interest in, an understanding of, and an enthusiasm for the world in which we live.

THE PRINCIPALSHIP LIKEWISE REQUIRES COMPETENCY OF A HIGH ORDER

We have probably said enough to indicate that competent and dynamic teachers are basic to the fulfillment of our educational purposes. This discussion leads naturally to a second and related consideration—the *training essential for the principal* of the elementary school. If the argument is valid that the teachers should be carefully selected and adequately trained, then is it not equally true that the leader of the group be a person of wide acquaintance with and abiding interests in his environment? The argument needs no support that the elementary principalship requires a large capacity for useful knowledge and a vigor in the application of that knowledge to the improvement of individual and of social situations. Further, the principal must be able to teach his teachers the basic elements of the democratic way of life through his everyday administrative practices.

It is necessary so to design the position of leadership in the elementary school that the best talent is attracted to this field of service. And once we have such leaders trained and in service, we must find means of promotion within the field of elementary administration itself. Nothing could be much more devastating to the welfare of our children than the widespread practice of using the elementary school principalship as a training ground for secondary school principals. Surely the field of secondary education could lose nothing by promoting outstanding ability within its

own ranks. Certainly the damage to the cause of elementary education is evident when the best talent among the elementary school principals is constantly drained into another field. We need a single salary schedule for principals in elementary and secondary schools based upon the quality and quantity of training and service. The rewards for superior service in the administration of an elementary school must directly contribute to further service in the same area. The standards for minimum competency for leadership in the elementary schools need to be raised. It will be almost impossible to attain these higher standards unless administrative adjustments are made to reward outstanding service by enlarging the responsibility and compensation and continuing our ablest leaders in the posts in which they have demonstrated they are so well fitted to serve.

CONCLUSION

The beginnings of the understandings and attitudes required to master and shape the forces of our contemporary world are laid in the elementary school. The classroom teachers are a constructive force in cultural change to the extent that they possess the highest qualities of social intelligence and character. No amount of tinkering administratively with types of organization, with classification of pupils, universal promotions, new systems of records and reports, elaborate testing programs, extra-curricular activities, etc., will be a substitute for teachers trained to do the task of sowing the seeds of an education for our dynamic age. Administration must cut to the core of the problem and so organize our profession that we can place competent and adequately trained teachers in every classroom. Once our classrooms are in the hands of such master teachers, administrators must surround them with a stimulating environment to continue their growth and protect them from hampering influences both in and out of school. If the task of elementary education is drawn in such terms, it is probable that we may contribute directly and significantly in the years ahead to the building of an American culture in which freedom and justice together with economic security and abundant leisure may be the common possession of all.

THE ACTIVITY PROCEDURE AND THE FUNDAMENTALS

ELIZABETH BRUENE, *Counselor, University Elementary School,
University of California at Los Angeles*

What are the fundamentals in education? Is the school fulfilling its duty in this matter of sending each boy and girl into the world equipped with these fundamentals, whatever they may be, in a satisfactory way? Such questions as these are constantly recurring during these times when there is no money for the non-essentials.

In the new school of today the order of educational procedure has been reversed. That which held first place in the schools of the past has become secondary and that which was considered secondary has become primary in importance. That being true, the three R's, the so-called fundamentals of the past, have given way to an emphasis on certain social values, those values which are essential if boys and girls are to be happy and take their places effectively in their social groups now and later in the larger social order.

The new school aims to develop in boys and girls an open-mindedness, an attitude of thinking critically, which will lead them to study and consider both sides of a question and then base their conclusions upon established facts rather than upon propaganda or the prejudices of some enthusiastic individual or newspaper.

Much emphasis is placed on the development of an emotionally balanced individual. How much happier and more valuable would many adults be today had they learned when young to control that temper, that desire to hurt others, that tendency to boast, that sensitiveness and shyness, that false modesty?

An effort is made to develop the individual interests so that each child may find some satisfaction and pleasure in his work and thus possibly avoid the tragedy of choosing an uncongenial trade or profession. The development of these interests also prepares the individual to pass his leisure time, of which there is much now with the possibility of more in the future, in a pleasureable worthwhile way.

The new school plans to develop in each child a sense of responsibility toward the group as a whole as well as toward every individual in the group, a consideration for the welfare of the group rather than personal selfish interests, a spirit of cooperation that will enable him to do his part irrespective of his own desires. It cannot all be play, but there comes as much of a feeling of satisfaction and contentment in the completion of tasks that are difficult and not so much to his liking as in the doing of those that make a special appeal.

Unfortunately we have no way of measuring the "fundamentals" of the new school in an objective way. Or perhaps that is fortunate, for measurements tend to standardize, and standardization tends to destroy individualism, to leave the variable human element out of consideration. At present observation which must necessarily be subjective and time-consuming seems to be the only available method for gathering data that shows growth in habits and attitudes.

Those of the University Elementary School who observe the children as they progress from group to group are positive that growth does take place. The conduct as observed in school and the reports of parents on the control out of school in some cases is conclusive evidence that desirable changes have come about. Changes in the children who are admitted from the traditional schools where they had had definite tasks assigned them become very apparent after having been in the new type of school for several weeks. For the first few weeks they either sit on the side lines and wonder what it is all about, too shy to assert their rights or not accustomed to think for themselves, or they act silly for want of something better to do. Gradually as they become interested in some phase of the work the shyness or silliness disappears.

There is need of a procedure by means of which schools can obtain more conclusive and objective evidence to prove that growth in habits and attitudes does take place.

However, in this plan of the new school there is a place for the so-called "fundamentals" of the old school. A carpenter learns to use his hammer and his saw well not for the sake of knowing how to use them but because the skillful use of his tools enables him to build a better house. And so we become skillful in the use of these tools—reading, arithmetic, spelling, and writing—not merely for the sake of knowing how, but because they are essential in promoting a richer, fuller life. It is therefore the duty of the school to help each child acquire these in the best possible way when the need for so doing arises. The data presented in the tables that follow are proof that this is being done in the University Elementary School even though primary emphasis is placed upon basic, fundamental experiences rather than upon constant drill in unrelated skills.

During the latter part of May, 1934, the New Stanford Achievement Test was given to all the children of the University Elementary School in grades three to seven inclusive. The medians used in the accompanying tables are the results of these tests. Previous to this time each child had been given a Stanford Binet Intelligence Test, the results of which were used to compute the mental ages as shown in Table I.

It should be remembered when interpreting the data presented that the curriculum of the University Elementary School does not conform to that of the conventional school. Standardized tests are based largely on the content of the more conventional school curriculum. This implies that much of that which is an important part of the integrated curriculum is not measured by these tests. The tests are used in the University Elementary School to measure the skills that are an inherent part of every integrated curriculum.

TABLE I

MEDIAN CHRONOLOGICAL, MENTAL, AND EDUCATIONAL AGES IN YEARS AND MONTHS OF UNIVERSITY ELEMENTARY SCHOOL PUPILS IN THE SEVERAL GRADES COMPARED WITH NORMAL CHRONOLOGICAL AGE FOR GRADE

	High 3	Low 4	High 4	Low 5	High 5	Low 6	High 6	Low 7	High 7
Chronological age.....	8- 9	9- 4	9- 8	10- 4	10- 9	11- 5	11- 9	12- 3	12- 8
Mental age.....	10- 5	10- 8	11- 9	11-11	12- 2	12- 7	13- 8	14- 2	14-10
Educational age.....	10- 5	10- 7	11- 8	12- 0	12- 3	12- 8	13- 5	13-11	14-10
Normal chronological age for grade ¹	9-10	10- 6	10-11	11- 4	11-10	12- 4	12- 8	13- 3	13-11

¹ From Stanford Achievement Test norms.

TABLE II

ACHIEVEMENT OF UNIVERSITY ELEMENTARY SCHOOL PUPILS IN TERMS OF MEDIAN GRADE PLACEMENT SCORES IN VARIOUS SUBJECTS BY GRADES

Subject	High 3	Low 4	High 4	Low 5	High 5	Low 6	High 6	Low 7	High 7
Reading.....	4.8	5.1	6.8	6.6	7.4	7.6	8.5	9.2	10.0
Spelling.....	4.3	4.5	5.3	5.3	5.6	5.9	6.2	7.6	8.7
Language.....		5.6	6.7	8.2	8.1	8.1	9.1	9.1	9.3
Literature.....		4.7	5.9	7.5	7.3	8.0	8.6	7.9	8.5
History.....		3.6	4.9	4.7	6.7	6.1	6.6	7.0	7.8
Geography.....		4.8	5.8	5.9	6.1	6.3	6.1	7.5	8.3
Hygiene.....		4.8	5.9	6.0	6.5	6.6	7.1	7.4	8.0
Arithmetic, reasoning.....		4.4	5.2	6.3	6.1	7.1	7.4	7.8	9.8
Arithmetic, computation.....		4.3	4.8	4.8	5.8	7.0	7.9	9.9	10.0
Total grade placement.....		4.6	5.8	6.2	6.4	7.0	7.6	8.1	8.8
Norm.....	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0

No results for grades one, two and low three are included in the foregoing tables. This does not imply that the children in these grades do nothing with reading and arithmetic. On the contrary—the rich experiences that their environment provides build up a background of interests that will lead into actual reading when the children are ready for that and the need arises. In the same way number concepts are developed through real life experiences. Since in the University Elementary School reading, arithmetic, and spelling are not stressed in the lower grades so much as in many other schools the results of standardized tests are not comparable with the established norms. The low three group was omitted because so many members were absent due to an epidemic.

CONCLUSIONS

A study of the foregoing reveals the following facts:

From Table I it is seen:

1. In comparison with the norms for pupils in the general school population the University Elementary School children are from a year to a year and two months younger in the various grades.

2. In all grades the median mental age is consistently higher than the chronological age, the difference ranging from a little over a year to more than two years.

3. The educational age in all grades almost parallels the mental age. This would imply that the University Elementary School children have an educational achievement equal to their mental capacity as measured by these tests.

4. The educational age in every grade is higher than the established norm as measured by this test.

From Table II it is concluded:

1. The University Elementary School children read better in all grades tested than those in the general school population as measured by the Stanford Achievement Test. That the difference in the lower grades is not so great as in the upper may be explained by a statement made previously—formal reading is not begun as early as in some schools.

2. Spelling ranges from eight months below in the low sixth to seven months above in the high seventh. Much of the spelling in the University Elementary School is inherent in the activities of the children. This means that words on the list for the grade have not been learned. That may account partly for the difference between the University Elementary School medians and the norms. It is possible that by the seventh grade the children have developed a spelling consciousness which enables them to spell correctly words that have not been studied.

3. In both language usage and literature the children in the University Elementary School excel those of the general school population in every grade.

4. In arithmetic computation the children of the University Elementary School fall slightly below those of the general school population in grades three, four, and five. Beginning with the low sixth the difference ranges from five months to two years above in the high seventh as measured by the Stanford Achievement Test. This would seem to prove that though little stress is put on formal arithmetic in the lower grades of the University Elementary School when the children finish the sixth grade they have achieved more than those of the general school population as measured by the Stanford Achievement Test.

5. In arithmetic reasoning no class drops below the norm. In the low fourth and high fifth the medians for the University Elementary School and those for the general school population practically coincide. The difference otherwise ranges from two months above in the high fourth to almost two years in the high seventh.

6. From the high third to the low sixth inclusive the reasoning ability in arithmetic as measured by this test exceeds the ability to compute. In the high sixth and seventh grades the reverse is true. This may be attributed to the content of the curriculum.

A COMPARATIVE STUDY OF ELEMENTARY SCHOOL LIBRARIES¹

MAMIE BARRETT, *Teacher, Whittier School, Berkeley*

Since a national survey of some aspects of the problems of the elementary school library was recently reported by the department of elementary school principals, the writer undertook to compare conditions in California with those reported for the United States as a whole.² In the national study, questionnaires were returned from 669 principals of elementary schools throughout the United States and Hawaii. Of this number fifty-seven replies or eight per cent were from California. Through the courtesy of Dr. Frank W. Hubbard, Associate Director, Research Division, National Education Association, these fifty-seven replies were secured in order that a separate analysis might be made. The purpose in the present article is to compare practices existing in California with those in the United States in general. As additional studies of California Elementary School library practices are made, specific recommendations may be reached concerning the most efficient organization, administration and functioning of the library in the elementary school.

The first recorded use of library books, or books which were not parts of sets of readers, was made by Annie E. Moore with kindergarten children in 1915.³

As early as 1895 A. W. Cole librarian of Jersey City Free Library indicted the public school for not teaching the child what to read, and to further his argument he quoted from George E. Hardy who said,

The great problem of the day is not to teach children how to read but what to read. If we fail to do this and content ourselves with giving the child the mechanical ability to read we are leaving him in possession of a power that is equally potent for evil as it is for good.⁴

Eugene T. Leis, in discussing one of the most important present day problems says:

We must shift our emphasis to the bigger portion of life, namely rich living, living up to the limits of our many sided capacities, having in mind both personal enlargement and social service. All of which is something like fulfillment of human destiny as far as our finite minds can define that destiny.⁵

¹ Written under the direction of Dr. John A. Hockett in a Seminar in Elementary Curriculum at the University of California.

² *Elementary School Libraries*, National Elementary Principal. Twelfth Yearbook of the Department of Elementary School Principals. Washington: Department of Elementary School Principals, National Education Association, XII, No. 5 (1933), 159-175.

³ C. De Witt Boney. *A Study of Library Reading in Primary Grades*. Contributions to Education No. 578. New York: Teachers College, Columbia University, 1935.

⁴ C. De Witt Boney, *op. cit.*

⁵ Eugene T. Leis. *The New Leisure Challenges the School*. National Recreation Association. Washington: National Education Association, 1933.

A recent study includes in its conclusions the following:

The elementary school library is considered the very heart of a progressive elementary school. We live in a reading age and our efforts should be extended to building an intelligent reading habit, that in turn builds a critical, informed mind.¹

Another study of trends involving a large number of principals of elementary schools in one of our most progressive states stresses such developments as the building of research attitudes among children, a tendency to build up and use libraries as reference rooms, a tendency to use text books for reference in solution of problems and to use many source materials.²

A prominent educator makes this statement:

The library is indispensable to the modern elementary school and should be adequately housed, equipped and directed by a professionally trained librarian.³

When we consider that before 1920 there were few elementary school libraries, we realize that much has been accomplished, but our changing civilization demands progress and we must study the elementary school library to increase its efficiency.

The following tables present a comparison of certain school library practices in California with those in the United States as a whole. This comparison is based on the data reported in the national study⁴ and an analysis of the questionnaires from California used in this study.

Table I shows the answers given by principals to the questions: Have you a library in your school? Is it a central library, classroom only, or combination central and classroom?

TABLE I
NUMBER OF SCHOOLS IN THE UNITED STATES AND IN CALIFORNIA HAVING CENTRAL, CLASSROOM, OR COMBINATION LIBRARIES

Size of school	Central libraries		Classroom libraries		Combina- tion	
	United States	California	United States	California	United States	California
Under 500.....	69	3	93	9	82	17
500 and over.....	127	14	133	4	96	10
Total number reported..	196	17	226	13	178	27
Per cent reporting various types.....	29.3	29.8	33.8	22.8	26.6	47.3

¹ C. De Witt Boney, *op. cit.*

² *Cardinal Objectives in Elementary Education. Trends in Unit Teaching. A Fourth Report by the Committee on Informal Teaching of the New York State Association of Elementary School Principals.* Albany: University of the State of New York Press, 1934.

³ Jesse H. Newlon, "Some Implications of the Indispensable School Library," *Teacher's College Record*, XXXIV (April, 1933), 552-9.

⁴ *Elementary School Libraries, op. cit.*

It will be noted from Table I that 47.3 per cent of the California elementary schools have a combination of the central and classroom library as compared with 26.6 per cent of elementary school in the United States as a whole. In this respect California library practice appears to provide more adequately for the needs of the progressive elementary school program than practice in the nation at large.

Table II answers the question: Who has charge of your elementary school library?

TABLE II

NUMBER OF SCHOOLS WITH TRAINED LIBRARIAN, TEACHER LIBRARIAN, TEACHER, OR OTHER PERSON IN CHARGE OF ELEMENTARY SCHOOL LIBRARY

Size of school	Trained librarian		Teacher librarian		Teacher		Clerk, secretary or pupils		Principal or others	
	United States	California	United States	California	United States	California	United States	California	United States	California
Under 500.....	45	3	43	2	116	23	34	1	17	0
500-1,000.....	49	4	72	3	140	17	33	0	14	1
Over 1,000.....	17	0	36	0	48	1	2	1	2	0
Total number.....	111	7	151	5	354	41	69	2	33	1
Per cent of schools having various persons in charge.....	16.5	12.2	22.5	8.7	52.9	71.9	10.3	3.5	4.9	1.7

A variety of persons have charge of the elementary school libraries. It has been assumed that only schools using the central library or combination central and classroom library will need a person in charge who has some library training. From Table II it is seen that 52.9 per cent of the elementary school libraries of the United States were supervised by classroom teachers, while 71.9 per cent of the elementary school libraries of California were in charge of classroom teachers. A need is shown here for more trained librarians in the elementary school libraries.

Table III summarizes elementary school responses to the question: Does 50 per cent or more of library funds come from school funds, Public Library Funds, Parent Teacher Funds, etc.?

TABLE III
NUMBER OF SCHOOLS REPORTING 50 PER CENT OR MORE OF LIBRARY FUNDS FROM VARIOUS SOURCES

Size of school	Sources of library funds									
	School funds		Public library fund		Parent Teacher Association		School activities		Miscellaneous	
	United States	California	United States	California	United States	California	United States	California	United States	California
Under 500.....	170	25	44	1	32	1	5	0	5	0
500-1,000.....	175	23	57	1	31	1	5	2	8	0
Over 1,000.....	64	1	25	0	7	0	1	0	1	0
Total number.....	409	47	126	2	70	2	11	2	14	0
Per cent indicating 50 per cent of income..	61.1	82.4	18.8	3.5	10.5	3.5	1.6	3.5	2.1	0

Table III shows that for California 82.4 per cent of the schools reported that they received 50 per cent or more of the library income from regular school funds. This indicates that the support of school libraries in California is generally a regular charge against school district funds and is not dependent upon the generosity of Parent Teacher Associations or other sources.

Table IV shows the number of schools in the United States and in California reporting certain relationships between school and public libraries. It is interesting to note that national practice and California practice parallel closely on all items except those concerned with the supplying of librarians and technical supplies to the elementary school by the Public Library.

TABLE IV

NUMBER OF SCHOOLS REPORTING CERTAIN RELATIONSHIPS BETWEEN
SCHOOL AND PUBLIC LIBRARY

Size of school	Books received from public library		Librarian supplied by public library		Technical supplies furnished by public library		Public library used as school library		Miscellaneous relationship	
	United States	California	United States	California	United States	California	United States	California	United States	California
Under 500-----	188	21	28	2	45	3	9	0	8	1
500-1,000-----	217	19	58	3	62	2	2	0	12	1
Over 1,000-----	78	1	10	0	21	0	1	0	1	0
Total number-----	485	41	96	5	128	5	12	0	21	2
Per cent reporting relationships-----	72.2	71.0	14.4	8.7	19.1	8.7	1.8	0	3.1	3.5

Table V is a distribution of elementary schools in the United States and in California according to the number of volumes contained in the elementary school libraries.

TABLE V

DISTRIBUTION OF SCHOOLS ACCORDING TO NUMBER OF VOLUMES IN ELEMENTARY SCHOOL LIBRARIES, UNITED STATES AND CALIFORNIA

Size of school	Less than 1,000 volumes		1,001-2,000 volumes		2,001-3,000 volumes		3,001-4,000 volumes		Over 4,000 volumes	
	United States	California	United States	California	United States	California	United States	California	United States	California
Under 500-----	172	14	41	5	14	3	8	2	12	4
500-1,000-----	112	15	80	4	20	0	14	4	18	3
Over 1,000-----	41	0	27	0	10	0	6	0	10	1
Total number-----	325	29	148	9	44	3	28	6	40	8
Per cent reporting number of volumes--	48.5	50.8	22.1	15.7	6.2	5.2	4.1	10.5	5.9	14.0

This table indicates that about one-half of the school libraries of the United States and of California had one thousand or less volumes in their elementary school libraries. However, about one-fourth of the California elementary school libraries as compared with 10 per cent of the schools in the United States as a whole had over three thousand volumes of library books,

Table VI shows the distribution of schools according to the percentage in the United States and California reporting various numbers of non-fiction, fiction, reference, supplementary, and miscellaneous library books.

TABLE VI

DISTRIBUTION OF SCHOOLS IN THE UNITED STATES AND CALIFORNIA ACCORDING TO THE PERCENTAGE REPORTING VARIOUS NUMBERS OF NON-FICTION, FICTION, REFERENCE, SUPPLEMENTARY, AND MISCELLANEOUS LIBRARY BOOKS

Number of volumes	Non-fiction		Fiction		Reference		Supplementary		Miscellaneous	
	United States	California	United States	California	United States	California	United States	California	United States	California
100 and under.....	14.8	22.8	12.4	17.6	34.2	66.6	13.6	8.0	14.4	10.5
101- 200.....	18.2	15.7	6.1	15.7	14.5	0.0	10.5	5.2	5.2	1.7
201- 300.....	6.0	3.5	4.0	10.5	3.1	5.2	4.6	1.7	1.6	1.7
301- 400.....	5.8	5.2	3.1	5.2	1.2	3.5	1.2	0.0	0.8	1.7
401- 500.....	3.3	5.2	2.7	12.2	1.1	1.7	3.6	5.2	0.8	0.0
501-1,500.....	18.2	14.0	6.6	14.0	2.1	0.0	6.1	3.5	1.6	1.7
1,501-2,500.....	4.9	5.2	0.5	8.0	0.5	0.0	2.5	8.0	0.0	0.0
2,501-7,500.....	2.1	3.5	0.2	0.0	0.0	0.0	2.5	8.0	0.2	0.0
No report.....	26.7	24.9	63.4	24.0	43.3	23.0	55.4	58.4	75.4	82.7
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

This table indicates that 73.3 per cent of the schools of the United States reported non-fiction books in the elementary school libraries. In California 75.1 per cent reported non-fiction books in the elementary school libraries. The percentage of California schools having fiction and reference books as reported here was much larger than the percentage for the United States. The percentage of libraries in California receiving the ten most widely used magazines as compared with the percentage of libraries in the United States as a whole is presented in Table VII.

TABLE VII

PERCENTAGE OF ELEMENTARY SCHOOL LIBRARIES RECEIVING THE
TEN MOST WIDELY USED MAGAZINES

Name of magazine	Percentage of schools receiving magazine in United States study	Percentage of schools receiving magazine in California
National Geographic.....	47.6	61.0
Nature Magazine.....	35.0	59.6
Child Life.....	33.6	47.3
Popular Mechanics.....	25.6	24.5
American Boy.....	19.4	14.0
American Girl.....	14.8	10.5
Boy's Life.....	14.7	22.8
Hygeia.....	11.2	24.5
Popular Science.....	14.1	7.0
St. Nicholas.....	8.5	19.2

The *National Geographic* was reported by 47.6 per cent of the schools of the United States and by 61 per cent of the California schools. *Nature Magazine* was reported by a greater percentage of the California schools, as was *Child Life*. The ten magazines reported from California in order of the percentage of schools receiving them were: (1) *National Geographic* reported by 61 per cent of the school libraries, (2) *Nature Magazine* by 59.6 per cent, (3) *Child Life* by 47.3 per cent, (4) *School Arts* by 36.8 per cent, (5) *Popular Mechanics* by 24.5 per cent, (6) *American Childhood* by 26.3 per cent, (7) *Boys' Life* by 22 per cent, (8) *My Weekly Reader* by 21 per cent, (9) *St. Nicholas* by 19 per cent, (10) *Current Events* by 10.5 per cent.

SUMMARY

The data presented in the seven tables show that California stands comparatively high in progressive library practices. About twice as many schools in California have combination central and classroom libraries as are found throughout the United States. About the same number of schools in California have central libraries as have the elementary schools of the entire country. Only in the number of classroom libraries is the California percentage smaller than the national ratio.

The important fact revealed by Table II is that a teacher without library training has charge of the elementary school libraries throughout the United States generally and also in California.

If the elementary school library is to function efficiently it is very important that its income be adequate. Over 82 per cent of the elementary schools of California reported receiving 50 per cent or more of their income from regular school funds, while only 61 per

cent of the schools in the national study reported school funds as 50 per cent or more of their money for library purposes.

Throughout the United States the Public Library Fund supplies more than 50 per cent of the income for 18.8 per cent of the schools. In California only 3.5 per cent of the schools reported similar income from the Public Library Fund. Parent Teacher Associations supply 50 per cent or more of the income for 10.5 per cent of the schools of the United States and for but 3.5 per cent of the income for California schools.

Public libraries of California cooperate with elementary school libraries as they do throughout the country. However California depends less upon public libraries for librarians and supplies than do schools of the United States. Although half of the schools of California reported elementary school libraries of one thousand or less volumes, approximately one-fourth had libraries of three thousand or more volumes, and many of these were small schools. Furthermore California elementary school libraries contain more fiction and reference books than are to be found in elementary school libraries of the United States.

If education as a life process is to be efficient, the elementary school library must function more effectively in the lives of all the pupils. This requires adequate support and an efficient library service for every elementary school.

WHAT DEFINITE IMPLICATIONS DOES A CHANGING SOCIAL ORDER HAVE FOR CLASSROOM METHODS, CONTROLS, AND EXPERIENCES?

GRAYSON N. KEFAUVER, *Dean, School of Education,
Stanford University*

Few, if any, will deny the fact that society has undergone fundamental modification during the last half century, and that we shall have a continuation of change. In fact, the rate of change will probably be accelerated. It is not possible to indicate all of the important elements in society which have undergone modification. There has been marked increase in the extent of interdependence of people with the individual and the community much less self-sufficient than was formerly the case. This reduction in the extent to which the individual and community can live unto itself alone presents need for wider social understandings and broader loyalties so that the cooperation which is demanded will be forthcoming. There has also been marked increase in our knowledge in the field of science and a marked increase in technology, greatly extending the capacity of the people to produce the goods and to provide the services which satisfy human wants and needs. This increased reliance upon machines as a substitute for human labor has brought with it a new problem of distribution of goods which the machines produce.

It is important in the social studies that society be interpreted as changing and emerging, with a certainty of continued change in the future. The popular idea that the marked changes of the past were legitimate, but that change at the present time or in the future is something to be frowned upon and avoided, is not a defensible position. This concept can be developed by a consideration of the changes to date, with a treatment also of the changes which are predicted, and the changes which are considered by the various writers to be desirable.

Educators are increasingly coming to realize that the nature of the educational task is set by the social environment in which the school operates, and changes as basic modifications are made in that environment. We recognize that close relationship between the conditions in the occupational field more sharply than in the other aspects of the educational program. We study the occupational opportunities and the occupational conditions, and attempt to shape an educational program which would enable an

individual to fit into the positions which are available, and to give him the basic competence which would enable him to perform on a higher level than that of the common run of workers now employed. Many vivid illustrations could be given at the present time, drawing from the social shifts in Europe, to indicate how the school task and the school program have been adjusted to serve the new social purposes. We are living in a democracy with a democratic social philosophy, with democratic social ideals, and with confidence in the democratic method of operating. I know of no one with any prominence in American education who does not accept as a guiding frame of reference these democratic principles. The educational leader should give considerable attention to identifying the important values in democratic life.

It will not be possible to canvass all of the features of the school program which should be examined in relationship to our social philosophy and to changed social conditions. It will be possible only to list some of the more important. The detailed interpretation and justification of the principles must be omitted from this discussion. What are some of the features which should characterize the education in a democracy?

(1) We should recognize the right of each individual to have his welfare considered equally with that of any other in the shaping of educational policy. The school in a democracy is not operated exclusively or chiefly to serve the intellectual elite, although the elite have rights in having their needs recognized. Consequently, we cannot justify the building of an educational environment in which the values are defined and the recognitions are set in terms which only a small proportion of the students can meet.

(2) The basic modification of the school should give large importance to the social values. Contribution of the individual to welfare of the group should move upward on the scale of values, and the improvement of one's own position without reference to affect upon the total group, should move downward on the scale. There is no thought here of justifying the loose statement, which one not infrequently hears, that the day of individualism and individual initiative is gone. It is intended, rather, to defend the point of view that the social values should play a larger role in motivating students' study activity. In this program competition should give way to cooperative effort looking to the welfare of the entire social group.

(3) The democratic method should be adopted in the classroom, allowing students freedom to think, to express their thoughts, and thereby to develop the qualities needed for democratic living. There should be opportunity, also, for students to share responsibility

for shaping the program of instruction in the classroom. The students' desires and interests and goals would thereby be given a position of greater importance.

(4) All subjects in a school program should receive social interpretations, rather than be taught as an independent body of subject matter unrelated to the problems and activities of the social group or of the individual. This social interpretation of the total curriculum is closely related to the next suggestion.

(5) The social studies should receive increased emphasis in the total program of the school, with stress placed on the social problems of the present generation. We are concerned in this program in developing social competence, which involves developing an understanding of democratic social values and ideals, an understanding of the conditions in American life, an understanding of the possibilities in American life, an understanding of the alternatives which are being proposed for the improvement of our life, and possession of attitudes and loyalties which cause one to feel responsibility for contributing to the effective operation of our society.

The dynamic nature of a rapidly changing society presents a vigorous challenge to an educational program. It requires a continuous scrutiny of the activities which have come to us from the past, and a willingness to change to meet new conditions. Merely to drift along with the program which has come to us is likely to cause the school to be ineffective, and it may even serve as an obstacle to social improvement.

THE TEACHER AND THE NEW SOCIAL ORDER¹

GUY A. WEST, *Director of Research and Registrar,
Chico State College*

Many a philosophical discussion has boiled down to at least one apparently irrefutable conclusion and that is that all things change except the factor of change. And so it seems safe enough to begin our consideration of the teacher and the new social order with the proposition that the most persistent characteristic of human society is change. Races shift and merge, leaders rise and then fall, research changes our superstitions into scientific understandings of our environment, ideals are constantly undergoing a process of change. All social institutions seem to obey the law of change.

VARIABILITY OF SOCIAL CHANGES

Still another generalization seems sound and that is that while changes are always in progress they nevertheless take place at a variable rate of speed. This is most impressively illustrated in the field of invention and discovery where so-called "progress" is proceeding at a geometrical ratio. At the same time, of course, we note a cultural lag or social maladjustment in a great many of our life activities. New media of communication and transportation diffuse urban cultures over suburban and rural areas and vice versa. The radio is reported to have given rise to no less than one hundred and fifty distinct social effects, ranging from the imposition of city ideas on conservative rural communities to important changes in the techniques of crime commission as well as in criminal detection.

We obviously have not made definite, straight line progress toward a certain standard of social security, the greatest peaks frequently having been followed by the deepest depressions. Moreover we are denied that element of security which effective prediction of business cycles might afford were accurate prediction possible. Of course, such will not be possible so long as rapid changes are occurring in invention, discovery, customs, laws, politics, finance, etc.

INCREASING SOCIAL CONSCIOUSNESS OF CULTURAL LAG

It is unnecessary to prolong discussion of the evidences of the variability of change. Suffice it merely to point out that we have made much recent progress in health knowledge, and medicine, that many changes have occurred in the organization and control of

¹ An address delivered at the Conference on Educational Problems, Mt. Shasta Summer Session, Chico State College, July 16, 1935.

industry, that the status of the "person" as compared with that of the "corporation," while not essentially different in law, has undergone rapid change. The resulting effects upon home life, religion, charity, recreation, travel, and other aspects of life need not be recounted here. We are coming more and more to recognize that most human suffering is the result of our permitting cultural lags here and there out of all proportion to the demands of the changing order. Recognition of this condition is evidence of our coming of age socially and of an awareness of the man-made features of our social order. This undoubtedly is a necessary first step toward problem solution.

We have, in other words, come to attribute less and less to invariable, irrefutable, laws of supply and demand, *laissez faire*, free competition, and taxation. We are giving up some of our timely dishonored superstitions as to social forces and are beginning to see ourselves in the objective light of social knowledge. The result may be the beginning of a scientific movement in social problem solving.

THE SCHOOLS AND THE NEW SOCIAL INTERDEPENDENCE

Increased social efficiency will depend in large measure upon increased social understanding and social cooperation growing out of our consciousness of an increasing degree of interdependence. The teacher and the schools are vital factors in the new social interdependence. And here again on the educational frontier we find most striking evidences of change. Education that once was justified in terms of its economic values to the individual is now finding justification more in terms of the needs of society and the cultural needs of the personality which is the child in social interaction. But so rapidly has the scene shifted that the educator himself is still groping in the dark to discover a workable philosophy of a new life and a philosophy of education in relation to that life. Increasingly the educator assumes responsibilities for social engineering as well as for inculcation of the social heritage.

A DEFINITION OF LEADERSHIP

Social direction demands evidences of qualifications for leadership. A leader may be defined as a person who satisfactorily (if not adequately) defines the situation facing a given group. Like sheep or cattle in crisis, people seek and follow leadership of one kind or another, good or bad. Leaders vary from the man who yells "lynch him" to the person whose intelligence and personality enable him adequately to see and evaluate the factors in a social problem and propose a plan of action. That man who arises to the present situation to tell us convincingly what is wrong with our old social and

economic order and how it should be changed and who appeals to our intelligence, emotions, or imagination, will emerge as the great statesman of the period. He may not yet have been born; it may be that he has spoken but remains to be heard.

So it is in any phase of our social life. That minister who arises to the same role in the field of religious life will emerge as a great spiritual leader and possibly he will become a standard bearer on other frontiers than religion if his voice penetrates to those depths. Indeed there are those who prophesy that we are on the eve of a great spiritual awakening.

THE TEACHER AS A SOCIAL LEADER

In like manner it is possible to have leadership of enormous proportions emerging from the ranks of educators. First we must have a leader who can define the nature and function of the schools and point the way for a host of educators who can do little but follow effective leadership. Such a leader has been known several times in our educational history. Perhaps we await a new development on this frontier. Meanwhile, however, it is possible for every teacher to exert leadership in his local situation. Those who cannot lead on a nation-wide scale must nevertheless lead on a local basis. Every group, no matter how small, seeks and follows leadership and it takes but two to make a group of minimum size. Undoubtedly much constructive progress remains to be gained through groups of small size.

DANGER OF EDUCATORS WORKING AT CROSS PURPOSES

While each teacher must accept responsibility for local leadership in civic and social affairs, there remains for consideration the problem of how we shall all work articulately toward the same general goals. Is there not danger that we are and shall be pulling in opposite directions? It is a real problem the solution for which seems to depend upon several important considerations. In the first place, we are lacking in a common basic philosophy. This conference as well as most other educational conferences evidences the fact that we are still struggling for light. We need both a common social philosophy and a common educational philosophy,—common at least in the broad fundamentals. Then we need a better understanding of vital social, economic and political problems, issues, and trends. Without these understandings we cannot, of course, evolve a genuine philosophy. In the third place we are in need of a better understanding of human nature and human culture. Teachers are surprisingly ignorant of the basic social processes, an understanding of which is essential to a scientific study and interpretation of social conditions. It goes without saying that we need more knowledge of the

child; biologically, psychologically, sociologically. Teachers are also in need of emotional balance. We are a nervous lot and we work under great strains and stresses which are distinct liabilities to us when we attempt the role of leaders. We need a better ability to handle people with tact and strategy. We cannot thrust even gold bricks upon a suspicious public without some degree of common sense and regard for the nature of that public.

DEALING WITH SUBTLE INFLUENCES

Lastly, as a prophylactic, we need a thorough understanding of propaganda and its subtle techniques. We cannot intelligently follow the social trend without this understanding, much less lead. While our more delicate ethics may preclude the use of such techniques for positive and constructive measures, common sense will convince the most obstinate that we cannot adjust pupils to life and its realities without at least a protective understanding of the vicious nature and the clever techniques of a constant flood of misleading advice, information, opinions, etc. As tentative steps toward combating this destructive tide the teacher should be on the alert to ask himself such questions as who is responsible for this? Why is it being presented? Are both sides of the issue being presented fully and freely? Are emotionally colored words used for special appeal? Is the appeal to one's intelligence or to his emotions? Who gains most by the success of the campaign? Are well known personalities used as a means of influencing the hearer or the reader?

Teachers who would follow in the new social order must broaden their training, their experiences, and their outlook. Those who would lead have momentous opportunities before them but first they must face the fact of their poor abilities and their present inadequacies. More than a thimbleful of energy and effort must be expended, but when so much is at stake what other course or alternative have we?

MUNICIPAL PROGRESS AS A THEME FOR CIVICS

ELENE MICHELL, *Professor of Social Science,
San Francisco State College*

The present interest in reorganizing both content and method within the junior and senior high schools holds much encouragement for the teacher of the older type of seventh or eighth grade who is responsible for the full time activities of her students. Learning should bring rich experiences to the child; this is more important than memorizing subject-matter. An integrated program implies that school work culminates in properly merged responses rather than in the separate blocks of skills into which our departmentalized system is likely to pigeonhole learning. To use a homely example, spelling should become an automatic response to an appropriate situation rather than an operation to be performed in connection with a spelling book. To be sure there is nothing essentially new about this idea, but it is well to remind oneself occasionally that good teaching involves an application of this philosophy.

Excerpts from a variety of sources brought together under the title "Signposts of Civic Progress"¹ furnish suggestions for activities which might include all the types of learning in an eighth grade program. The article presents in condensed form many items of news about various cities; it tells that eighty-four cities in the United States were free from local taxes as a result of owning and operating public utilities; that three Philadelphia playgrounds maintained "doll libraries" last summer; that many cities, names are given, use a school instead of a jail for traffic violators; that Berkeley entertained 5000 citizens at a municipal "open house"; that Rock Island County, Illinois, let many folks pay their taxes by doing road work, and so on. Each pupil might report on one item to bring the matter before the class. Interest would probably be stimulated for further investigation of these particular cases as well as for inquiry into local affairs.

The underlying psychology of progressive education implies establishing attitudes and habits of successful activity in ways that are socially valuable. For this purpose the use of the local situation is significant; actual inspection of city recreation centers, an interview with the mayor, the postmaster, or the fire or police chief, and a consequent talk to the class by a representative of one of these departments brings close to the coming citizen certain problems of city government, far closer than would the writing of a fine outline on a topic compiled from the text.

¹ "Signposts of Civic Progress" *The Reader's Digest*. XXVI (May, 1935), 71-73.

Theoretically a study of the local situation should initiate the project. The purpose in suggesting that the local scene be used as the second step in this activity is to give each pupil a broad view of city responsibilities and to pave the way for an understanding of the inter-relationship of one department to another. In a rural community this might more easily be achieved through having each child investigate a larger city but ultimately each pupil should find out personally about one or more phases of the local situation. The third step would be assembling, as cooperative class activity, the original investigations made in step two. And finally there should be creative planning for local improvement.

PLAN FOR CLASS ACTIVITY DEALING WITH MUNICIPAL PROGRESS

Different members of the class may report orally to the whole class an item from "Signposts of Civic Progress."¹

It may be suggested that each member of the class select one American city for study. The teacher will need to direct individual selections so that each child considers a representative city in a different state. Family traditions about "back home" may be satisfied in the case of a small community by tracing its relationship to the industrial center of that state.

In the process of learning about his city, each pupil may write either to the Chamber of Commerce of the selected city asking for definite information, or request that his letter be forwarded to a teacher of social science in that city for one of her pupils to answer. It is advisable to enclose a stamped, self-addressed envelope. Specific information such as the following should be requested, assuming, of course, that it is not available in standard references:

1. The form of city government (city manager or elected mayor)
2. Local industries
3. Natural resources
4. Transportation facilities
 - Local and transcontinental
 - Are busses displacing steam or electric cars?
 - Automobile roads
5. Public utilities
 - Owned and operated by the city or privately?
 - If private, length of years charter may run; and income to city from charter

¹ *Op. cit.*

6. Municipal finances
 - Bonded indebtedness
 - Assessed valuation of property
 - Types of taxes levied
 - Tax rate on real property; amount for schools
7. The most famous citizen
 - What has he done for his city?
8. Additional information
 - Is printed literature available?
 - Are civic festivals planned, such as fairs, rodeos, or home coming weeks?

The pupil should locate his city on a blank map of the United States large enough to show the relation of this city to the industrial and transportation activities of the state and the nation. In addition, pictorial maps showing special features, historical, commercial, or recreational may be developed in a semihumorous manner. The history of each city may be written by the pupil in relation to the periods of American history; for example, Detroit was founded by the French; taken over by our nation from England; became important after the invention of the automobile; made a significant recovery after the bank crisis in 1933; etc. *The Readers' Guide*¹ will supply references to many articles about the best known cities. Or a letter may be written to a social science teacher in the city selected asking her to have a pupil write and give the desired information.

Pupils should give oral reports to the class about the different cities; such talks should be accompanied by illustrations whenever possible, the map developed by the individual student, graphs showing financial standing, tax rate, or population growth, and pictures. Computing the proportions for a simple pie- or bar-graph is practical mathematics. The local city should be compared with the various municipalities studied, seeking to appreciate points deserving approbation, and to develop plans for progress in the next few years. In this comparison, cooperative work might be secured through the growth of an informational outline on the black-board. Blanks should be left for desired facts, to be filled in as each pupil does his share of personal investigating.

Experiences which bring a closer understanding of civic problems should be arranged. Committees or individuals might interview city officials either to arrange for a talk to the class or to report personally for the official. In many cases pupils are more interested in the talk given by a lesser official with whose duties they are quite

¹ *The Readers' Guide to Periodical Literature*. Minneapolis: The H. W. Wilson Company, 1905.

familiar, such as the mail carrier, the nearby traffic officer, or a fireman. Usually it is advisable for the teacher to suggest to the speaker the type of material that will appeal to the class. A visit to the city council chambers or attendance at an evening session of the council will prove enlightening. With due discretion on the part of the teacher, visits of small committees of the class can be arranged for certain city institutions, such as a clinic, an old-folks' home, or an orphanage. In some cases an understanding parent will supervise such a visit; but the teacher will need to use wisdom in selecting and preparing the adult participants in such a program.

The final summary might very well take the form of a fathers' evening when selected students would report on outstanding cities of the United States and on their own town. Pictures, maps, and graphs will form an interesting visual exhibit. It is highly desirable that each child have some of his own work exhibited. Individual activities for such a display could include any work done on the project, and such illustrations as charts and pictorial maps of recreational facilities, industries, transportation lines, photographs and compositions on points of historical interest, blue prints for new parks, a civic center, and so on.

Such a project will take time; it may very well absorb half of the time allowed each week for civics. But it will fuse geography, history, composition, civics, mathematics, art in city planning, outlines giving information, historical write-ups, oral speech, personal poise in interviews, and, of course, interest in current events. The student will need to understand the city manager plan as well as the mayor-centered municipality; city budgets, assessments, taxation, city planning, and industrial and relief geography. An important skill should result from the use of *The Readers' Guide*. Even the textbook may become useful as a reference aid.

To know one city thoroughly and to understand the possibilities for local development and progress will mean more in the future growth of the young citizen than the ability to pass a test on the facts given in the average text in civics. Certainly the attitudes resulting from happy contacts with adult situations will make for a willingness to assume later the responsibilities of citizenship.

